A mediation server sequentially supplies, to the image processing device, two or more pieces of screen information for causing a display unit of the image processing device to sequentially display two or more screens including a service selection screen and a communication selection screen when a first type of request is acquired. The mediation server executes a communication for mediating supply of the first type of target data from the target service providing server to the image processing device when it is the first type of communication and executes communication for mediating supply of the second type of target data from the image processing device to the target service providing server when it is the second type of communication.
FIG. 2
(ONE EXAMPLE OF DATA IN MULTIFUNCTION DEVICE)
PLURAL PIECES OF LAYOUT INFORMATION 36

SFL TABLE 38

<table>
<thead>
<tr>
<th>USER NAME</th>
<th>PASSWORD</th>
<th>PRINT</th>
<th>SCAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>U1</td>
<td>PU1</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>U2</td>
<td>PU2</td>
<td>NG</td>
<td>OK</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

SERVICE USER TABLE 40

<table>
<thead>
<tr>
<th>SERVICE NAME</th>
<th>ACCOUNT NAME</th>
<th>PASSWORD</th>
<th>FACE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVA</td>
<td>AN0</td>
<td>PN0</td>
<td>IDF0</td>
</tr>
<tr>
<td>SVE</td>
<td>AN1</td>
<td>PN1</td>
<td>IDF1</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

FIG. 3
(EXAMPLE OF DATA IN MEDIATION SERVER)

SERVICE OBJ TABLE 76

<table>
<thead>
<tr>
<th>URL</th>
<th>SERVICE NAME</th>
<th>IMAGE DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>SVA</td>
<td>A</td>
</tr>
<tr>
<td>USB</td>
<td>SVB</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>UH</td>
<td>HISTORY</td>
<td>History</td>
</tr>
</tbody>
</table>

FACE OBJ TABLE 78

<table>
<thead>
<tr>
<th>URL</th>
<th>FACE ID</th>
<th>IMAGE DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UF1</td>
<td>IDF1</td>
<td>(&quot;^&quot;&quot;^&quot;)</td>
</tr>
<tr>
<td>UF2</td>
<td>IDF2</td>
<td>(&quot;<em>&quot;&quot;</em>&quot;)</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
### FIG. 4

**MULTIFUNCTION DEVICE**

10

(S10) USER ID "U1" AND PASSWORD "PU1" INPUT

(S12) MAIN SCREEN SC1 DISPLAY

(S14) "WEB" SELECTION

(S16) INITIAL REQUEST

(M1 (MAC ADDRESS OF MULTIFUNCTION DEVICE, NORMAL MODE INFORMATION, AND TARGET SFL INFORMATION))

**MEDIATION SERVER**

(S20) RESPONSE

(HISTORY | UH (S34) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LAYOUT ID))

(S30) ACQUIRE EACH PIECE OF SERVICE OB INFORMATION AND HISTORY OB INFORMATION

(S32) GENERATE SERVICE SELECTION SCREEN INFORMATION

(S34) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LAYOUT ID)

(S40) IMAGE DATA REQUEST (USA, USB, USC, USD, USE, UH)

(S42) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

(S50) SERVICE SELECTION SCREEN SC2 DISPLAY

(S52) SCREEN CHANGE BUTTON SELECTION

(S54) SERVICE SELECTION SCREEN SC3 DISPLAY

(S56) SERVICE NAME "SVE" SELECTION

(S58) SELECTION INFORMATION (SVE (TARGET SERVICE NAME))

(S60) DETERMINATION OF TARGET SFL INFORMATION

(IN CASE OF NG)

(S62) ERROR INFORMATION

(IN CASE OF OK → TO A OF FIG. 5)

(S64) ERROR SCREEN SCE DISPLAY

**END**

**END**

### Table

<table>
<thead>
<tr>
<th>SERVICE NAME</th>
<th>URL</th>
<th>FLAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVA</td>
<td>USA</td>
<td>ON</td>
</tr>
<tr>
<td>SVB</td>
<td>USB</td>
<td></td>
</tr>
<tr>
<td>SVC</td>
<td>USC</td>
<td></td>
</tr>
<tr>
<td>SVD</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>SVE</td>
<td>USE</td>
<td></td>
</tr>
<tr>
<td>HISTORY</td>
<td>UH</td>
<td></td>
</tr>
</tbody>
</table>
FIG. 5

MULTIFUNCTION DEVICE

DB SERVER

MEDIATION SERVER

(S70) REGISTRATION REQUEST (M1, SVE)

(S72) REGISTRATION

(S74) ACCOUNT INFORMATION REQUEST (SVE)

(S76) EACH PIECE OF ACCOUNT INFORMATION (ex. AN1(ACCOUNT NAME), PN1(PASSWORD), IDF1(FACE ID), AN2-PN2-IDF2)

ACCOUNT NAME | URL
---|---
AN1 | UF1
AN2 | UF2

(S80) GENERATE ACCOUNT SELECTION SCREEN INFORMATION

(S82) ACCOUNT SELECTION SCREEN INFORMATION (ABOVE TABLE, USE, LY2 (LAYOUT ID))

(S90) IMAGE DATA REQUEST (UF1, UF2, USE)

(S92) EACH PIECE OF IMAGE DATA

(S94) ACCOUNT SELECTION SCREEN SC4 DISPLAY

(S96) ACCOUNT NAME "AN2" SELECTION

(S98) SELECTION INFORMATION (AN2 (TARGET ACCOUNT NAME), PN2 (TARGET PASSWORD), UF2 (TARGET FACE URL), USE (TARGET SERVICE URL))

(S106) COMMUNICATION SELECTION SCREEN INFORMATION (Download Print, (Scan Upload), UF2, USE, LY2)

(S110) COMBINED DATA REQUEST (UF2, USE)

(S112) COMBINED DATA

(S114) COMMUNICATION SELECTION SCREEN SC5 DISPLAY

(S116) DP OR SU SELECTION

DP → TO C: IN Fig. 6
SU → TO D: IN Fig. 7

DP → TO C: IN Fig. 6
SU → TO D: IN Fig. 7
FIG. 7

MULTIFUNCTION DEVICE

(S220) SELECTION INFORMATION (SU)

(S232) FD INFORMATION REQUEST (AN2, PN2)

(S234) Y PIECES OF FD INFORMATION (ex. F1 (FOLDER NAME), IDD1 (FOLDER ID))

(S242) FD SELECTION SCREEN INFORMATION (Y PIECES OF FD INFORMATION, LY3)

(S254) FD SELECTION SCREEN SC9 DISPLAY

(S256) "F1" SELECTION

(S258) SELECTION INFORMATION (IDD1)

(S260) URL REQUEST (IDD1)

(S262) URL

(S270) GENERATION OF SCAN CONDITIONS SCREEN INFORMATION

(S272) SCAN CONDITIONS SCREEN INFORMATION (EACH CHARACTER STRING, EACH SELECTION OPTION, LY4)

(S274) SCAN CONDITIONS SCREEN SC10 DISPLAY

(S276) SELECTION

(S278) SELECTION INFORMATION (SCAN CONDITIONS)

(S280) SU DISPLAY (URL, SCAN CONDITIONS)

(S290) SCAN

(S292) UL REQUEST (URL, IMAGE DATA)

END
FIG. 8

CASE IN WHICH "Scan" IS SELECTED IN MAIN SCREEN

MULTIFUNCTION
DEVICE

<table>
<thead>
<tr>
<th>SERVICE NAME</th>
<th>URL</th>
<th>FLAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVA</td>
<td>USA</td>
<td>ON</td>
</tr>
<tr>
<td>SVC</td>
<td>USC</td>
<td></td>
</tr>
<tr>
<td>SVD</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>SVE</td>
<td>USE</td>
<td></td>
</tr>
<tr>
<td>HISTORY</td>
<td>UH</td>
<td></td>
</tr>
</tbody>
</table>

(MULTIFUNCTION DEVICE)

(S310) USER ID "U1" AND PASSWORD "P1" INPUT

(S312) MAIN SCREEN SC1 DISPLAY

(S313) "Scan" SELECTION

(S314) STORAGE METHOD SELECTION SCREEN SC11 DISPLAY

(S315) "Scan to Web" SELECTION

(S316) INITIAL REQUEST (M1, SCAN MODE INFORMATION AND TARGET SFL INFORMATION)

(MEDICATION SERVER)

(S321) DETERMINATION OF TARGET SFL INFORMATION

(IN CASE OF OK)

(S330) ACQUIRE EACH PIECE OF SERVICE OB INFORMATION AND HISTORY OB INFORMATION

(S332) GENERATE SERVICE SELECTION SCREEN INFORMATION

(DB SERVER)

(S322) INFORMATION REQUEST (M1)

(S324) RESPONSE (NO REGISTRATION)

(S334) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LY1)

(S340) IMAGE DATA REQUEST (USA, USC, USD, USE, UH)

(S342) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

(S350) SERVICE SELECTION SCREEN SC12 DISPLAY

(S352) IMAGE CHANGE BUTTON SELECTION

(S354) SERVICE SELECTION SCREEN SC13 DISPLAY

(S356) SERVICE NAME "SVE" SELECTION

(S358) SELECTION INFORMATION (SVE)

- THE SAME AS S70 TO S98 OF FIG. 5
- NOT EXECUTING S104 TO S116 OF FIG. 5 AND S220 AND S230 OF FIG. 7

END

- THE SAME AS S232 TO S292 OF FIG. 7

END
**FIG. 9**

**MAIN SCREEN SC1**

- Web
- Scan

**SCREEN CHANGE BUTTON SELECTION**

**SERVICE SELECTION SCREEN SC2**

- A
- B
- C

- SVA
- SVB
- SWC

**SERVICE NAME**

**SCREEN CHANGE BUTTON SELECTION**

**SERVICE SELECTION SCREEN SC3**

- D
- E
- History

- SVD
- SVE
- HISTORY

**ACCOUNT SELECTION SCREEN SC4**

- AN1
- AN2

**BACK BUTTON**

**FACE OBJECT**

**ACCOUNT NAME**

**SERVICE NAME**

**AN2 SELECTION (IN CASE OF NORMAL MODE)**

**COMMUNICATION SELECTION SCREEN SC5**

- Download Print
- Scan Upload

**COMBINED OBJECT**

**STORAGE METHOD SELECTION SCREEN SC11**

- Scan to USB
- Scan to Email
- Scan to Web

**SCREEN CHANGE BUTTON SELECTION**

**SERVICE SELECTION SCREEN SC12**

- A
- C
- D

- SVA
- SVC
- SVD

**SCREEN CHANGE BUTTON SELECTION**

**SERVICE SELECTION SCREEN SC13**

- E
- History

- SVE
- HISTORY

**ERROR SCREEN SCE**

- EXECUTION OF FUNCTION IS NOT PERMITTED
FIG. 10

(IN CASE OF DP)

IMAGE SELECTION SCREEN SC7

- 
- 

↓ IMAGE SELECTION

PRINT CONDITIONS SCREEN SC8

<table>
<thead>
<tr>
<th>IMAGE QUALITY</th>
<th>FINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAPER</td>
<td>FINE</td>
</tr>
<tr>
<td>SIZE</td>
<td>A4</td>
</tr>
</tbody>
</table>

OK

(IN CASE OF SU)

FD SELECTION SCREEN SC9

- F1
- F2
- F3

↓ FOLDER SELECTION

SCAN CONDITIONS SCREEN SC10

<table>
<thead>
<tr>
<th>RESOLUTION</th>
<th>600dpi</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORMAT</td>
<td>PDF</td>
</tr>
<tr>
<td>SIZE</td>
<td>A4</td>
</tr>
</tbody>
</table>

OK
**FIG. 11**

(CASE IN WHICH "SVE" IS REGISTERED IN DB SERVER 80)

1. **MULTIFUNCTION DEVICE**
   - (S510) USER ID "U1" AND PASSWORD "PU1" INPUT
   - (S512) MAIN SCREEN SC1 DISPLAY
   - (S514) "WEB" SELECTION
   - (S516) INITIAL REQUEST (M1, NORMAL MODE INFORMATION, AND TARGET SFL INFORMATION)

2. **MEDIATION SERVER**
   - (S520) INFORMATION REQUEST (M1)
   - (S522) INFORMATION REQUEST (M1)
   - (S524) RESPONSE (SVE)

3. **SERVICE SELECTION SCREEN SC3 DISPLAY**
   - (S530) ACQUIRE EACH PIECE OF SERVICE OB INFORMATION AND HISTORY OB INFORMATION
   - (S532) GENERATE SERVICE SELECTION SCREEN INFORMATION
   - SERVICE NAME | URL | FLAG
     | SVA | USA |
     | SVB | USB |
     | SVC | USC |
     | SVD | USD |
     | SVE | USE | ON |
     | HISTORY | UH |
   - (S534) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LY1)
   - (S540) IMAGE DATA REQUEST (USA, USB, USC, USD, USE, UH)
   - (S542) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

4. **SERVICE SELECTION SCREEN SC3 DISPLAY**
   - (S550) SERVICE SELECTION SCREEN SC3 DISPLAY
   - (S552) SCREEN CHANGE BUTTON SELECTION

5. **SERVICE SELECTION SCREEN SC2 DISPLAY**
   - (S554) SERVICE SELECTION SCREEN SC2 DISPLAY
   - SUBSEQUENT PROCESS IS THE SAME AS PROCESS SUBSEQUENT TO S56 OF FIG. 4

END

END
FIG. 12

(CASE IN WHICH "SVE" IS REGISTERED IN DB SERVER 80)

MULTIFUNCTION DEVICE  

MEDIATION SERVER  

(S612) MAIN SCREEN SC1 DISPLAY+(S613) "Scan" SELECTION

(S614) STORAGE METHOD SELECTION SCREEN SC11 DISPLAY+(S615) "Scan to Web" SELECTION

(S616) INITIAL REQUEST (M1, SCAN MODE INFORMATION, AND TARGET SFL INFORMATION)

DB SERVER  

(S621) DETERMINATION OF TARGET SFL INFORMATION

(S622) INFORMATION REQUEST (M1)

(S624) RESPONSE (SVE)

SERVICES NAME | URL | FLAG
---|---|---
SVA | USA |  
SVC | USC |  
SVD | USD |  
SVE | USE | ON
HISTORY | UH |  

(S634) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LIO1)

(S640) IMAGE DATA REQUEST (USA, USC, USD, USE, UH)

(S642) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

(S650) SERVICE SELECTION SCREEN SC13 DISPLAY

(S652) IMAGE CHANGE BUTTON SELECTION

(S654) SERVICE SELECTION SCREEN SC12 DISPLAY

END

SUBSEQUENT PROCESS IS THE SAME AS PROCESS SUBSEQUENT TO S356 OF Fig. 8
FIG. 13

(CASE IN WHICH "SVB" IS REGISTERED IN DB SERVER 80)

MULTIFUNCTION DEVICE ----- MEDIATION SERVER

(S610) USER ID "U1" AND PASSWORD "PU1" INPUT
(S612) MAIN SCREEN SC1 DISPLAY+(S613) "SCAN" SELECTION
(S614) STORAGE METHOD SELECTION SCREEN SC11 DISPLAY+(S615) "Scan to Web" SELECTION
(S616) INITIAL REQUEST
(M1, SCAN MODE INFORMATION, AND TARGET SFL INFORMATION)

DB SERVER

(S622) INFORMATION REQUEST (M1)
(S624) RESPONSE (SVB)

SERVICE NAME | URL | FLAG
--- | --- | ---
SVA | USA | ON
SVC | USC | |
SVD | USD | |
SVE | USE | |
HISTORY | UH | |

(S634) SERVICE SELECTION SCREEN INFORMATION (ABOVE TABLE AND LY1)
(S640) IMAGE DATA REQUEST (USA, USC, USD, USE, UH)
(S642) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

(S651) SERVICE SELECTION SCREEN SC12 DISPLAY

A C D
SVA SVC SVD

(S652) IMAGE CHANGE BUTTON SELECTION

(S655) SERVICE SELECTION SCREEN SC13 DISPLAY

E History
SVE HISTORY

SUBSEQUENT PROCESS
IS THE SAME AS
PROCESS SUBSEQUENT
TO S356 OF Fig. 8
FIG. 14

(CASE IN WHICH BACK BUTTON IS SELECTED)

MULTIFUNCTION DEVICE

S10 to S60 of Fig. 4 and S70 to S94 of Fig. 5 are the same

ACCOUNT SELECTION SCREEN SC4 DISPLAY

BACK BUTTON

BACK BUTTON SELECTION

RETURN REQUEST

DB SERVER

INFORMATION REQUEST (M1)

RESPONSE (SVE)

SERVICE SELECTION SCREEN

INFORMATION

SERVICE NAME | URL | FLAG
---|---|---
SVA | USA |
SVB | USB |
SVC | USC |
SVD | USD |
SVE | USE |
HISTORY | UH |

SERVICE SELECTION SCREEN INFORMATION

(ABOVE TABLE AND L1)

IMAGE DATA REQUEST (USA, USB, USC, USD, USE, UH)

EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

SERVICE SELECTION SCREEN SC3 DISPLAY

D | E | History

SVD | SVE | HISTORY

SUBSEQUENT PROCESS IS THE SAME AS PROCESS SUBSEQUENT TO S56 OF FIG. 4

END
FIG. 15

(CASE IN WHICH HISTORY IS SELECTED)

MULTIFUNCTION DEVICE

MEDIATION SERVER

S10 TO S54 OF Fig. 4 ARE THE SAME

(S800) HISTORY SELECTION

(HISTORY, MD (MODEL NAME OF MULTIFUNCTION DEVICE))

(S802) SELECTION INFORMATION

(S804) HISTORY SCREEN INFORMATION

(UPDATE HISTORY INFORMATION, LY5 (LAYOUT ID))

(S806) HISTORY SCREEN SC14 DISPLAY

2012.12.1 SUPPORT SERVICE NAME “SVC”
2013.4.15 SUPPORT SERVICE NAME “SVD”

(S808) BACK BUTTON SELECTION

(S810) RETURN REQUEST

Back

(S832) GENERATE SERVICE SELECTION SCREEN INFORMATION

(S834) SERVICE SELECTION SCREEN INFORMATION

(ABOVE TABLE AND LY1)

(S840) IMAGE DATA REQUEST (USA, USB, USC, USD, USE, UH)

(S842) EACH PIECE OF IMAGE DATA OF EACH SERVICE OB AND HISTORY OB

(S850) SERVICE SELECTION SCREEN SC3 DISPLAY

<table>
<thead>
<tr>
<th>SERVICE NAME</th>
<th>URL</th>
<th>FLAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVA</td>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>SVB</td>
<td>USB</td>
<td></td>
</tr>
<tr>
<td>SVC</td>
<td>USC</td>
<td></td>
</tr>
<tr>
<td>SVD</td>
<td>USD</td>
<td></td>
</tr>
<tr>
<td>SVE</td>
<td>USE</td>
<td></td>
</tr>
<tr>
<td>HISTORY</td>
<td>UH</td>
<td>ON</td>
</tr>
</tbody>
</table>

SUBSEQUENT PROCESS IS THE SAME AS PROCESS SUBSEQUENT TO S56 OF FIG. 4
**FIG. 16**

**PROCESS OF MEDIATION SERVER**

1. **ACQUIRE INITIAL REQUEST FROM MULTIFUNCTION DEVICE**

   **NO (NORMAL MODE)**
   - **SCAN MODE?**
     - **YES**
     - **SFLOK?**
       - **NO**
         - **SUPPLY ERROR INFORMATION TO MULTIFUNCTION DEVICE**
       - **YES**
         - **ACCESS DB SERVER**
   - **F**

2. **GENERATE SERVICE SELECTION SCREEN INFORMATION AND SUPPLY SERVICE SELECTION SCREEN INFORMATION TO MULTIFUNCTION DEVICE**
   - **FLAG "ON": REGISTERED SERVICE NAME OR SERVICE NAME IN TOP COLUMN**
   - **SCAN MODE: EXCLUDE SP SERVER INCAPABLE OF EXECUTING IMAGE DATA STORAGE FUNCTION**

3. **IS SELECTION INFORMATION ACQUIRED FROM MULTIFUNCTION DEVICE?**
   - **NO**
   - **YES**
     - **SELECTED SERVICE NAME = "HISTORY"?**
       - **NO**
         - **REGISTER IN DB SERVER**
       - **YES**
         - **GENERATE HISTORY SCREEN INFORMATION AND SUPPLY HISTORY SCREEN INFORMATION TO MULTIFUNCTION DEVICE**

4. **IS RETURN REQUEST ACQUIRED?**
   - **NO**
   - **YES**
     - **GENERATE SERVICE SELECTION SCREEN INFORMATION AND SUPPLY SERVICE SELECTION SCREEN INFORMATION TO MULTIFUNCTION DEVICE**
       - **FLAG "ON": SERVICE NAME "HISTORY"**
       - **SCAN MODE: EXCLUDE SP SERVER INCAPABLE OF EXECUTING IMAGE DATA STORAGE FUNCTION**
MEDIATION SERVER AND IMAGE PROCESSING DEVICE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application is based upon and claims the benefit of priority of Japanese Patent Application No. 2013-267696 filed on Dec. 25, 2013 the contents of which are incorporated herein by reference in its entirety.

BACKGROUND

[0002] The present specification discloses a mediation server for mediating provision of a plurality of services from one or more service providing servers to an image processing device, and the image processing device.

[0003] It is known a service linking system including a multifunction device and a relay device. When one of plural types of services is selected by a user, the multifunction device executes various communications with the relay device to receive the selected service from a service providing device. For example, the multifunction device sequentially acquires an album owner input UI display command and an album name selection UI display command from the relay device. Accordingly, the multifunction device sequentially displays an album owner input UI and an album name selection UI. Also, the user can execute each setting related to the selected service (for example, input of the album owner name or selection of the album name) in each UI.

[0004] Only the configuration in which the album owner input UI and the album name selection UI are always displayed in the multifunction device is not assumed. When a screen for causing the user to execute unnecessary settings is displayed, the user is likely to experience unease in using the multifunction device like. In the present specification, a technology capable of improving convenience of the user is provided.

[0005] An aspect of the present disclosure provides the following arrangements:

[0006] A mediation server for mediating provision of a plurality of services from at least one service providing server to an image processing device capable of executing two or more types of image processing, the mediation server comprising:

[0007] a processor; and

[0008] memory storing a computer executable program, when executed by the processor, causing the mediation server to execute:

[0009] a request acquisition instruction of acquiring a request for screen information from the image processing device, the request acquisition instruction causing the mediation server to acquire a first type of request from the image processing device when any one of the two or more types of image processing to be executed in the image processing device has not yet been selected by a user of the image processing device, and acquire a second type of request from the image processing device when a specific type of image processing to be executed in the image processing device among the two or more types of image processing has been selected by the user;

[0010] a screen information supply instruction of sequentially supplying, to the image processing device, two or more pieces of screen information for causing a display unit of the image processing device to sequentially display two or more screens including a service selection screen and a communication selection screen when the first type of request is acquired, the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting target communication from plural types of communications including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data to the image processing device from a target service providing server which provides the target service among the at least one service providing server, the second type of communication including supply of a second type of target data to the target service providing server from the image processing device, the first type of target data being data related to the first type of image processing among the two or more types of image processing, and the second type of target data being data related to the second type of image processing among the two or more type of image processing;

[0011] a selection information acquisition instruction of acquiring, from the image processing device, service selection information indicating the target service and communication selection information indicating the target communication when the two or more pieces of screen information are supplied; and

[0012] a mediation communication execution instruction of executing first mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information and the communication selection information are acquired, the first mediation communication including communication for mediating supply of the first type of target data from the target service providing server to the image processing device when the communication selection information indicates the first type of communication as the target communication, and the first mediation communication including communication for mediating supply of the second type of target data from the image processing device to the target service providing server when the communication selection information indicates the second type of communication as the target communication,

[0013] wherein when the second type of request is acquired, the screen information supply instruction causes the mediation server to sequentially supply, to the image processing device, at least one piece of screen information for causing the display unit to sequentially display at least one screen in which the communication selection screen has been excluded from the two or more screens,

[0014] wherein when the at least one piece of screen information are supplied, the selection information acquisition instruction causes the mediation server to acquire, from the image processing device, the service selection information without acquiring the communication selection information,

[0015] wherein the mediation communication execution instruction causes the mediation server to execute second mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information is acquired without acquiring the communication selection information, and

[0016] wherein the second mediation communication includes communication of target data to be executed between the target service providing server and the image processing device, the communication being for mediating the communication of the target data related to the specific type of image processing.
An image processing device configured to execute two or more types of image processing and communicate with a mediation server for mediating provision of a plurality of services from at least one service providing server to the image processing device, the image processing device comprising:

- a display unit; and
- a control device configured to execute:
- a request supply process of supplying a request for screen information to the mediation server when a predetermined instruction that is a trigger of execution of the image processing is given from a user of the image processing device, the request supply instruction causing the image processing device to supply a first type of request to the mediation server when any one of the two or more types of image processing to be executed has not yet selected by the user, and supply a second type of request to the mediation server when a specific type of image processing to be executed among the two or more types of image processing has been selected by the user;

- a screen information acquisition process of sequentially acquiring two or more pieces of screen information from the mediation server in a first case in which the first type of request is supplied;

- a first display control process of causing the display unit to sequentially display the two or more screens including a service selection screen and a communication selection screen sequentially using the two or more pieces of screen information in the first case, the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting a target communication from among plural types of communication including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data from a target service providing server providing the target service among the at least one service providing server to the image processing device, the second type of communication including supply of a second type of target data from the image processing device to the target service providing server, the first type of target data being data related to a first type of image processing among the two or more types of image processing and the second type of target data being data related to a second type of image processing among the two or more types of image processing;

- a selection information supply process of supplying, to the mediation server, service selection information indicating the target service and communication selection information indicating the target communication in the first case;

- a target data acquisition process of receiving mediation from the mediation server to acquire the first type of target data from the target service providing server when the communication selection information indicating the first type of communication is supplied as the target communication in the first case; and

- a target data supply process of receiving mediation from the mediation server to supply the second type of target data to the target service providing server when the communication selection information indicating the second type of communication is supplied as the target communication in the first case,

- wherein the screen information acquisition process causes the image processing device to sequentially acquire, from the mediation server, at least one piece of screen information for causing the display unit to display at least one screen in which the communication selection screen has been excluded from among the two or more pieces of screen information in a second case in which the second type of request is supplied;

- wherein the first display control process causes the image processing device to cause the display unit to sequentially display at least one screen including the service selection screen and not including the communication selection screen sequentially using the at least one piece of screen information in the second case,

- wherein the selection information supply process causes the image processing device to supply the service selection information to the mediation server without supplying the communication selection information in the second case, and

- wherein the control device execute a target data communication process of receiving mediation from the mediation server to execute communication of the target data related to the specific type of image processing with the target service providing server in the second case.

8. A System Comprising:

- an image processing device configured to execute two or more types of image processing; and

- a mediation server for communicating with the image processing device and mediating provision of a plurality of services from at least one service providing server to the image processing device capable of executing two or more types of image processing;

- wherein the mediation server comprises:

- a processor; and

- memory storing a computer executable program, when executed by the processor, causing the mediation server to execute:

- a request acquisition instruction of acquiring a request for screen information from the image processing device, the request acquisition instruction causing the mediation server to acquire a first type of request from the image processing device when any one of the two or more types of image processing to be executed in the image processing device has not yet been selected by a user of the image processing device, and acquire a second type of request from the image processing device when a specific type of image processing to be executed in the image processing device among the two or more types of image processing has been selected by the user;

- a screen information supply instruction of sequentially supplying, to the image processing device, two or more pieces of screen information for causing a display unit of the image processing device to sequentially display two or more screens including a service selection screen and a communication selection screen when the first type of request is acquired, the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting target communication from plural types of communications including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data to the image processing device from a target service providing server which provides the target service among the at least one service providing server, the second type of communication including supply of a second type of target data to the target service providing
server from the image processing device, the first type of target data being data related to the first type of image processing among the two or more types of image processing, and the second type of target data being data related to the second type of image processing among the two or more types of image processing;

[0037] a selection information acquisition instruction of acquiring, from the image processing device, service selection information indicating the target service and communication selection information indicating the target communication when the two or more pieces of screen information are supplied; and

[0038] a mediation communication execution instruction of executing first mediation communication for mediating provision of the target service indicated by the service selection information and the communication selection information are acquired, the first mediation communication including communication for mediating supply of the first type of target data from the target service providing server to the image processing device when the communication selection information indicates the first type of communication as the target communication, and the first mediation communication including communication for mediating supply of the second type of target data from the image processing device to the target service providing server when the communication selection information indicates the second type of communication as the target communication,

[0039] wherein when the second type of request is acquired, the screen information supply instruction causes the mediation server to sequentially supply, to the image processing device, at least one piece of screen information for causing the display unit to sequentially display at least one screen in which the communication selection screen has been excluded from the two or more screens,

[0040] wherein when the at least one piece of screen information are supplied, the selection information acquisition instruction causes the mediation server to acquire, from the image processing device, the service selection information without acquiring the communication selection information,

[0041] wherein the mediation communication execution instruction causes the mediation server to execute second mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information is acquired without acquiring the communication selection information, and

[0042] wherein the second mediation communication includes communication of target data to be executed between the target service providing server and the image processing device, the communication being for mediating the communication of the target data related to the specific type of image processing, and

[0043] wherein the image processing device comprises:

[0044] a display unit; and

[0045] a control device configured to execute:

[0046] a request supply process of supplying the request for screen information to the mediation server when a predetermined instruction that is a trigger of execution of the image processing is given from the user;

[0047] a screen information acquisition process of sequentially acquiring the two or more pieces of screen information from the mediation server in a first case in which the first type of request is supplied;

[0048] a first display control process of causing the display unit to sequentially display the two or more screens including the service selection screen and the communication selection screen sequentially using the two or more pieces of screen information in the first case;

[0049] a selection information supply process of supplying, to the mediation server, the service selection information in the first case;

[0050] a target data acquisition process of receiving mediation from the mediation server to acquire the first type of target data from the target service providing server when the communication selection information indicating the first type of communication is supplied as the target communication in the first case; and

[0051] a target data supply process of receiving mediation from the mediation server to supply the second type of target data to the target service providing server when the communication selection information indicating the second type of communication is supplied as the target communication in the first case,

[0052] wherein the screen information acquisition process causes the image processing device to sequentially acquire, from the mediation server, the at least one piece of screen information for causing the display unit to display at least one screen in which the communication selection screen has been excluded from among the two or more pieces of screen information in a second case in which the second type of request is supplied,

[0053] wherein the first display control process causes the image processing device to cause the display unit to sequentially display at least one screen including the service selection screen and not including the communication selection screen sequentially using the at least one piece of screen information in the second case,

[0054] wherein the selection information supply process causes the image processing device to supply the service selection information to the mediation server without supplying the communication selection information in the second case, and

[0055] wherein the control device execute a target data communication process of receiving mediation from the mediation server to execute communication of the target data related to the specific type of image processing with the target service providing server in the second case.

BRIEF DESCRIPTION OF DRAWINGS

[0056] FIG. 1 illustrates a configuration of a communication system.

[0057] FIG. 2 illustrates an example of data in a multifunction device of a first embodiment.

[0058] FIG. 3 illustrates an example of data in the mediation server.

[0059] FIG. 4 illustrates each process when “Web” is selected in a main screen.

[0060] FIG. 5 illustrates each process when a determination result of target SFL information is OK.

[0061] FIG. 6 illustrates each process when download print (that is, DP) is selected.

[0062] FIG. 7 illustrates each process when scan upload (that is, SU) is selected.

[0063] FIG. 8 illustrates each process when “Scan” is selected in a main screen.

[0064] FIG. 9 illustrates each screen displayed in a multifunction device.

[0065] FIG. 10 illustrates each screen displayed in a multifunction device.
FIG. 11 illustrates each process when “Web” is selected in a main screen in a state in which a service name “SVE” is registered in a database server.

FIG. 12 illustrates each process when “Scan” is selected in the main screen in a state in which the service name “SVE” is registered in the database server.

FIG. 13 illustrates each process when “Scan” is selected in the main screen in a state in which a service name “SVE” is registered in the database server.

FIG. 14 illustrates each process when a back button is selected in an account selection screen.

FIG. 15 illustrates each process when a history is selected in a service selection screen.

FIG. 16 illustrates a flowchart of each process executed by a mediation server.

FIG. 17 illustrates a flowchart continued from FIG. 16.

FIG. 18 illustrates a flowchart of each process executed by a multifunction device of a second embodiment.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

First Embodiment

Configuration of System

A communication system 2 includes a multifunction device 10, a mediation server 50, a database server (hereinafter referred to as a “DB server”) 80, and a plurality of service providing servers (hereinafter referred to as “an SP server”) 100, as illustrated in FIG. 1. These devices 10, 50, 80, and 100 are configured as separate entities.

(Configuration of Multifunction Device 10)

The multifunction device 10 can execute multiple functions, including a print function, a scan function, a copy function, a FAX function, and the like. The multifunction device 10 is a device connected to a local area network (LAN) (not illustrated), and is a peripheral device of other devices (for example, a personal computer (PC)) connected to the LAN. The multifunction device 10 includes an operation unit 12, a display unit 14, a print execution unit 16, a scan execution unit 18, a network I/F 20, and a control unit 30.

The operation unit 12 includes a plurality of keys. A user can input various instructions to the multifunction device 10 by operating the operation unit 12. The display unit 14 is a display for displaying various pieces of information. The display unit 14 functions as a so-called touch panel. That is, the display unit 14 also functions as an operation unit operated by the user. The print execution unit 16 includes a print mechanism in an ink-jet scheme, a laser scheme, or the like. The scan execution unit 18 includes a scan mechanism, such as a CCD or a CIS. The network I/F 20 is an interface for connection to the LAN (not illustrated). The multifunction device 10 can access the Internet via the network I/F 20 (that is, via the LAN).

The control unit 30 includes a CPU 32 and a memory 34. The CPU 32 executes various processes according to a program stored in the memory 34. The memory 34 stores plural pieces of layout information 36, a secure function lock (SFL) table 38, and a service user table 40, in addition to the program.

Each of plural pieces of layout information 36 is information in which a layout ID (for example, “L.V1”) and layout data are associated, as illustrated in FIG. 2. The layout ID is identification information for identifying the layout data. The layout data is data indicating a layout of a screen to be displayed on the display unit 14. The plural pieces of layout information 36 are stored in the memory 34 in advance in a shipment stage of the multifunction device 10.

One or more pieces of SFL information are registered in the SFL table 38. Each piece of SFL information is information in which a user name, a password, print permission information, and scan permission information are associated. The user name is identification information for identifying the user of the multifunction device 10. The password is authentication information for authenticating the user. The print permission information indicates “OK” when the user is permitted to cause the multifunction device 10 to execute the print function, and indicates “NG” when the user is not permitted. The scan permission information indicates “OK” when the user is permitted to cause the multifunction device 10 to execute the scan function, and indicates “NG” when the user is not permitted. For example, a manager of the multifunction device 10 operates the operation unit 12 and registers each piece of SFL information for each user in the SFL table 38.

One or more pieces of service user information are registered in the service user table 40. Each piece of service user information is information in which a service name, an account name, a password, and a face ID are associated. The service name is a name of the service to be provided by each SP server 100 and, in other words, a server name of each SP server 100. The account name is identification information for identifying a user of the SP server 100. The password is authentication information for authenticating the user. The face ID is identification information for identifying a face object. Further, hereinafter, an object is referred to as an “OB.”

For example, the user accesses any SP server 100 using any PC (not illustrated) and registers the account name and the password in the SP server 100. Then, for example, the user accesses the multifunction device 10 using the PC (not illustrated) and registers the service name of the SP server 100, the account name, the password, and the face ID in the service user table 40. Accordingly, one piece of service user information is registered in the service user table 40. Further, the user can access the mediation server 50 (that is, access each piece of image data in the face OB table 78 of FIG. 3 to be described below) using the PC (not illustrated) and display each face OB on the PC. Accordingly, the user can ascertain each face ID corresponding to each face OB and register a face ID corresponding to a desired face OB in the service user table 40.

(Configuration of Mediation Server 50)

The mediation server 50 of FIG. 1 is a server provided by the vendor of the multifunction device 10. The mediation server 50 is a server that mediates provision of the service from each SP server 100 to the multifunction device 10. Specifically, the mediation server 50 can execute communication with each SP server 100 according to each application program interface (API) corresponding to each SP server 100.

The mediation server 50 includes a network I/F 60, and a control unit 70. The mediation server 50 can access the Internet via the network I/F 60. The control unit 70 includes a CPU 72 and a memory 74. The CPU 72 executes various processes according to a program stored in the memory 74.
The program in the memory 74 includes a plurality of APIs corresponding to the plurality of SP servers 100. Each of the plurality of APIs is a program for communicating with the SP server corresponding to the API and executing data processing. The memory 74 stores a service OB table 76 and a face OB table 78, in addition to the program. The information within the respective tables 76 and 78 is registered by the management of the mediation server 50 (that is, the vendor of the multifunction device 10) in advance. Each piece of face OB information and history OB information (that is, information in a bottom column of FIG. 3) are registered in the service OB table 76, as illustrated in FIG. 3. Each piece of service OB information is information in which a uniform resource locator (URL), a service name, and image data are associated. The service name is a name of the service provided by each SP server 100. The URL is a location information indicating a location (that is, a location within the mediation server 50) of the image data indicating the service OB. The image data is data indicating the service OB (that is, an image indicating the service).

The history OB information is information in which a URL, a service name, and image data are associated, as well. However, the history OB information is not related to each service provided by each SP server 100, and information related to a history supply service that can be provided by the mediation server 50. The history supply service is a service for supplying history information indicating the service of the SP server supported by a device sold by a vendor of the multifunction device 10 and a time when the service of the SP server is supported, to the device.

Plural pieces of face OB information are registered in the face OB table 78. Each piece of face OB information is information in which a URL, a face ID, and image data are associated. The URL is location information indicating a location of image data indicating the face OB (that is, a location within the mediation server 50). The face ID is identification information for identifying the face OB (that is, an image representing the face). The image data is data indicating the face OB.

The DB server 80 of FIG. 1 is a server provided by the vendor of the multifunction device 10. The DB server 80 can communicate with the mediator server 50 through the Internet. The DB server 80 stores the selected service table 82. Information in the selected service table 82 is registered according to an instruction from the mediation server 50.

Plural pieces of selected service information are registered in the selected service table 82. Each selected service information is information in which an MAC address and a service name are associated. The MAC address is identification information assigned to the multifunction device (for example, 10) in advance. In this embodiment, the MAC address of the multifunction device 10 is “M1.” The service name is a service name selected in the past by the user of the multifunction device.

(Configuration of the SP Server 100)

The plurality of SP servers 100 are, for example, servers (that is, cloud servers) having respective service names such as “Evernote (registered trademark),” “Google (registered trademark) Docs,” “Picasa (registered trademark),” and “Facebook (registered trademark).” Each SP server 100 provides the service corresponding to the SP server to the communication device (for example, the multifunction device 10) through the Internet. Each SP server 100 can provide various services to the communication device by executing various functions. For example, there is an SP server that can execute a function of acquiring image data from the communication device and storing the image data (hereinafter referred to as an “image data storage function”), and there is an SP server that can execute a function of supplying image data to the communication device (hereinafter referred to as an “image data supplying function”). In this embodiment, all of the plurality of SP servers 100 for which the mediation server 50 can provide the service can execute the image data supplying function. However, only some of the plurality of SP servers 100 can execute the image data storage function.

(Each Process Executed by Respective Devices 10 and 50 or the Like; FIG. 4)

In this embodiment, it is assumed that the multifunction device 10 receives a service from the service providing server 100 for executing download print or scan upload. The download print is downloading image data from the service providing server 100 and executing printing of an image represented by the image data. In this case, the service providing server 100 executes the image data supplying function. Further, the scan upload is generating the image data through scanning of a document and uploading the image data to the service providing server 100. In this case, the service providing server 100 executes the image data storage function. Hereinafter, the download print and the scan upload may be referred to as “DP” (Download Print) and “SU” (Scan Upload).

As illustrated in FIG. 4, the user inputs a user ID “UI” and a password “PUI” to the multifunction device 10 in S10. Further, the user may operate the operation unit 12 to input information to the multifunction device 10 or may input information to the multifunction device 10 using the touch panel of the display unit 14. Hereinafter, the operation of the user may also be executed by either the operation unit 12 or the touch panel of the display unit 14.

In S12, the CPU 32 of the multifunction device 10 supplies the display data stored in the memory 34 in advance to the display unit 14 and causes the display unit 14 to display a main screen SCI of FIG. 9. The main screen SCI includes an object indicating “Web” and an object indicating “Scan.” The object indicating “Web” is an object indicating execution of connection to the Internet. The object indicating “Scan” is an object indicating execution of the scan function. Further, the main screen SCI may include other objects indicating execution of other functions (for example, an object indicating “Copy” and an object indicating “FAX”).

In S14 of FIG. 4, the user selects the object indicating “Web” in the main screen SCI. In this case, the CPU 32 of the multifunction device 10 supplies an initial request to the mediation server 50 in S16. The initial request includes an MAC address “M1” of the multifunction device 10, normal mode information, and target SFL information. The normal mode information is information included in the initial request when the object indicating “Web” is selected in the main screen SCI. The target SFL information is information (for example, print permission information “OK” and scan permission information “OK”) associated with the user ID “UI” and the password “PUI” input in S10 among the one or more pieces of SFL information registered in the SFL table 38 within the memory 34 (see FIG. 2).
When the CPU 72 of the mediation server 50 acquires the initial request from the multifunction device 10, the CPU 72 supplies an information request including the MAC address “M1” within the initial request to the DB server 80 in S22.

When the DB server 80 acquires the information request from the mediation server 50, the DB server 80 determines whether the MAC address “M1” within the information request is registered in the selected service table 82 (see FIG. 1). In the example of FIG. 4, the DB server 80 determines that the MAC address “M1” is not registered and, as a result, supplies a response indicating “No registration” to the mediation server 50 in S24.

When the CPU 72 of the mediation server 50 acquires the response from the DB server 80, the CPU 72 acquires each piece of service OB information and the history OB information from the service OB table 76 (see FIG. 3) within the memory 74 in S30. Also, the CPU 72 generates service selection screen information in S32. Then, the CPU 72 supplies the service selection screen information to the multifunction device 10 in S34. The service selection screen information is information for causing the multifunction device 10 to display two or more service selection screens (see SC2 and SC3 in FIG. 9), and is specifically generated as follows.

The CPU 72 of the mediation server 50 first generates the table of FIG. 4. In this table, a service name, a URL, and a flag are associated. The CPU 72 describes each service name and each URL included in each piece of service OB information in the table in the same order as the arrangement order of the respective pieces of service OB information within the service OB table 76 (see FIG. 3). Then, the CPU 72 describes the service name “history” and the URL “UIH” included in the history OB information in the table (that is, describes them in the bottom column). Also, the CPU 72 describes “ON” as a flag in a top column of the tables since the response of S24 indicates “No registration.” The flag “ON” is information associated with only any one service name within the table, and is information for instructing the multifunction device 10 to first display a screen including the service name. Further, when the response of S24 indicates the service name rather than “No registration,” the CPU 72 describes the flag “ON” in association with the service name. Further, the CPU 72 understands the plurality of layout IDs “LY1” to “LY4” (see FIG. 2) used in the multifunction device 10 in advance, and determines one layout ID “LY1” among these layout IDs. Accordingly, the CPU 72 can generate service selection screen information including the table of FIG. 4 and the layout ID “LY1.”

When the CPU 32 of the multifunction device 10 acquires the service selection screen information from the mediation server 50, the CPU 32 supplies an image data request including six URLs within the service selection screen information to the mediation server 50 in S40.

When the CPU 72 of the mediation server 50 acquires the image data request from the multifunction device 10, the CPU 72 acquires the six pieces of image data identified by the six URLs within the image data request from the service OB table 76 (see FIG. 3). Also, the CPU 72 supplies the six pieces of image data to the multifunction device 10 in S42.

When the CPU 32 of the multifunction device 10 acquires the six pieces of image data from the mediation server 50, the CPU 32 generates two pieces of display data indicating two service selection screens (see SC2 and SC3 in FIG. 9) in S50. Specifically, the CPU 32 acquires layout data identified by the layout ID “LY1” within the service selection screen information from among the plural pieces of layout information 36 in the memory 34. Since the acquired layout data includes three areas A1 to A3 (see FIG. 2), the CPU 32 acquires three service names “SVA,” “SVE,” and “SVC” sequentially from the top column of the table within the service selection screen information and adds the three service names below the three areas A1 to A3. The CPU 32 also adds the three pieces of image data corresponding to the three service names among the six pieces of acquired image data to the three areas A1 to A3. Accordingly, the first display data is completed.

Similarly, the CPU 32 generates second display data using the same layout data as the acquired layout data. That is, the CPU 32 acquires three remaining service names “SVD,” “SVE,” and “history” from the table within the service selection screen information, adds the three service names below the three areas A1 to A3 and also adds the three pieces of remaining image data among the six pieces of acquired image data to the three areas A1 to A3. Accordingly, the second display data is completed.

Since the flag “ON” is described in association with the service name “SVA” in the table within the service selection screen information, the CPU 32 determines that a service selection screen including the service name “SVA” is to be displayed first. As a result, the CPU 32 first supplies the first display data to the display unit 14, and causes the display unit 14 to display a service selection screen SC2 of FIG. 9. The service selection screen SC2 includes three service OBs indicating figures “A” and the like, three service names indicating “SVA” and the like, and screen change buttons.

In S52 of FIG. 4, the user selects the screen change button in the service selection screen SC2. In this case, the CPU 32 of the multifunction device 10 supplies the second display data to the display unit 14 and causes the display unit 14 to display a service selection screen SC3 of FIG. 9 in S54. The service selection screen SC3 includes two service OBs indicating a figure “D” and the like, one history OB indicating a figure “History,” three service names, and a screen change button. When the user selects the screen change button in the service selection screen SC3, the CPU 32 supplies the first display data to the display unit 14 again and causes the display unit 14 to display the service selection screen SC2 again.

In this embodiment, the mediation server 50 supplies the service selection screen information including the layout ID “LY1” and the plurality of service names to the multifunction device 10, as described above (see S34). Accordingly, the multifunction device 10 displays the service selection screens SC2 and SC3 using the layout data identified by the layout ID “LY1.” Alternatively, for example, it is assumed that the mediation server 50 adopts a configuration in which display data indicating the service selection screen (for example, the first and second display data generated by the multifunction device 10 in S50) is generated and the display data is supplied to the multifunction device 10 (hereinafter referred to as a “configuration of a comparative example”).
OBs and supply the first display data to the multifunction device 10. Further, for example, a situation in which there is a multifunction device that is a model different from the multifunction device 10 (hereinafter referred to as a "specific multifunction device"), and in the specific multifunction device, the layout data identified by the layout ID "LY1" includes four areas is assumed. In this case, the mediation server 50 should generate display data indicating one service selection screen including four service OBs, and supply the display data to the specific multifunction device. Thus, in the configuration of the comparative example, since it is necessary for the mediation server 50 to generate different display data according to the model of the multifunction device, a load on the mediation server 50 is high. On the other hand, in this embodiment, the mediation server 50 may supply the same service selection screen information to the multifunction device 10 and the specific multifunction device. Accordingly, for example, the multifunction device 10 generates display data indicating one service selection screen SC2 including three service OBs, and the specific multifunction device generates display data indicating one service selection screen including four service OBs. That is, the mediation server 50 does not generate different display data according to the model of the multifunction device. Therefore, the load on the mediation server 50 is lower than that in the configuration of the comparative example.

[0112] In S56 of FIG. 4, the user selects a service having the service name “SVE” by selecting the service OB indicating the figure “E” in the service selection screen SC3. Further, the service name (that is, “SVE”) selected in S56, the service having the service name, and the SP server providing the service are hereinafter referred to as a “target service name,” “target service,” and “target SP server,” respectively. In S58, the CPU 32 of the multifunction device 10 supplies selection information including the target service name “SVE” to the mediation server 50.

[0113] In S60, the CPU 72 of the mediation server 50 executes a determination of the target SFL information acquired in S16 and determines “OK” or “NG” as a determination result. The determination result “OK” of S60 means that the multifunction device 10 can execute at least one of the download function (that is, the DP) and the scan upload (that is, SU) based on the target SFL information and the target service. Further, the determination result “NG” of S60 means that the multifunction device 10 can execute neither the DP nor the SU. When either the print permission information or the scan permission information within the target SFL information indicates “NG,” the CPU 72 determines “NG” as a determination result.

[0114] As described above, the plurality of SP servers 100 can all execute the image data supplying function in this embodiment, whereas only some of the plurality of SP servers 100 can execute the image data storage function. Therefore, the target SP server 100 is capable of executing at least the image data supplying function. When the print permission information within the target SFL information indicates “OK,” the CPU 72 determines “OK” as a determination result. This is because the user is allowed to execute the print function and the target SP server 100 is capable of executing at least the image data supplying function, and thus, the multifunction device 10 can execute at least the DP.

[0115] Further, when the print permission information within the target SFL information is “NG” and the scan permission information within the target SFL information is “OK,” the CPU 72 determines whether the object SP server 100 is capable of executing the image data storage function. The determination is executed based on information (not illustrated) on each SP server 100 stored in the memory 74 in advance. When the CPU 72 determines that the target SP server can execute the image data storage function, the CPU 72 determines “OK” as a determination result. This is because the user is allowed to execute the scan function and the target SP server 100 is capable of executing the image data storage function, and thus, the multifunction device 10 can execute the SU. On the other hand, when the CPU 72 determines that the target SP server is incapable of executing the image data storage function, the CPU 72 determines “NG” as a determination result.

[0116] When the CPU 72 of the mediation server 50 determines “NG” as the determination result of S60, the CPU 72 supplies error information to the multifunction device 10 in S62. In this case, the CPU 72 ends the process according to the initial request of S16 without supplying each piece of screen information to be described below (see, for example, S82 and S106 of FIG. 5) to the multifunction device 10.

[0117] When the CPU 32 of the multifunction device 10 acquires the error information from the mediation server 50, the CPU 32 supplies display data stored in the memory 34 in advance to the display unit 14 and causes the display unit 14 to display an error screen SCE of FIG. 9 in S64. Accordingly, the user can understand that it is not possible to cause the multifunction device 10 to execute the DP or the SU.

[0118] (Case in which Determination Result of S60 of FIG. 4 is “OK”;

[0119] As illustrated in FIG. 5, when the CPU 72 of the mediation server 50 determines “OK” as a determination result of S60 of FIG. 4, the CPU 72 of the mediation server 50 supplies a registration request to the DB server 80 in S70. The registration request includes the MAC address “M1” of the multifunction device 10, and the target service name “SVE.”

[0120] When the DB server 80 acquires the registration request from the mediation server 50, the DB server 80 determines whether the MAC address “M1” within the registration request is registered in the selected service table 82 (see FIG. 1). When the DB server 80 determines that the MAC address “M1” is not registered, the DB server 80 registers new selection information in the selected service table 82 in S72. The new selection information is information in which the MAC address “M1” and the target service name “SVE” are associated. Further, when the DB server 80 determines that the MAC address “M1” is registered, the DB server 80 describes the target service name “SVE” in the selected service table 82 in place of a service name associated with the MAC address “M1” in S72.

[0121] In S74, the CPU 72 of the mediation server 50 supplies an account information request including the target service name “SVE” to the multifunction device 10.

[0122] When the CPU 32 of the multifunction device 10 acquires the account information request from the mediation server 50, the CPU 32 acquires one or more pieces of account information (that is, an account name, a password, and a face ID) associated with the target service name “SVE” within the account information request from the service user 40 (see FIG. 2). Also, the CPU 32 supplies the one or more pieces of acquired account information to the mediation server 50 in S76.

[0123] When the CPU 72 of the mediation server 50 acquires the one or more pieces of account information from
the multifunction device 10, the CPU 72 generates account selection screen information in S80. Then, the CPU 72 supplies the account selection screen information to the multifunction device 10 in S82. The account selection screen information is information for causing the multifunction device 10 to display an account selection screen (see SC4 of FIG. 9) and is specifically generated as follows.

[0124] The CPU 72 of the mediation server 50 first generates a table of FIG. 5. In this table, the account name and the URL are associated. The CPU 72 executes the following process using one of the one or more pieces of account information to generate the table. That is, the CPU 72 acquires a URL associated with the face ID within the one piece of account information from the face OB table 78 (see FIG. 3). Also, the CPU 72 describes the account name and the acquired URL within the one piece of account information in the table in association with each other. The CPU 72 similarly executes the process for other account information. Accordingly, the table of FIG. 5 is completed. Further, the CPU 72 acquires an URL “USE” associated with the target service name “SVE” (hereinafter referred to as a “target service URL”) from the service OB table 76 (see FIG. 3). Further, the CPU 72 determines one layout ID “LY2” (see FIG. 2). Accordingly, the CPU 72 can generate the account selection screen information including the table of FIG. 5, the target service URL “USE,” and the layout ID “LY2.”

[0125] When the CPU 72 of the multifunction device 10 acquires the account selection screen information from the mediation server 50, the CPU 72 supplies an image data request including three URLs “UFI,” “UF2,” and “USE” within the account selection screen information to the mediation server 50 in S90.

[0126] When the CPU 72 of the mediation server 50 acquires the image data request from the multifunction device 10, the CPU 72 acquires three pieces of image data identified by the three URLs “UFI,” “UF2,” and “USE” within the image data request from the service OB table 76 and the face OB table 78 (see FIG. 3). Also, the CPU 72 supplies the three pieces of image data to the multifunction device 10 in S92.

[0127] When the CPU 32 of the multifunction device 10 acquires the three pieces of image data from the mediation server 50, the CPU 32 generates display data indicating the account selection screen information (see S93 of FIG 9) in S94. Specifically, the CPU 32 acquires the layout data identified by the layout ID “LY2” from the memory 34. The acquired layout data includes a plurality of areas A4, A5, and A6, as illustrated in FIG. 2. The CPU 32 describes two account names “AN1” and “AN2” included in the table within the account selection screen information in the two areas A4 and A5. The CPU 32 also describes two pieces of image data indicating the face OB among the three pieces of acquired image data in the two areas A4 and A5. Further, the CPU 32 describes one piece of image data indicating the service OB among the three pieces of acquired image data in the area A6. Accordingly, the display data is completed. The CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the account selection screen SC4 of FIG. 9. In this example, the account selection screen SC4 includes two face OBs, two account names, the service OB, and the back button.

[0128] In S96 of FIG. 5, the user selects the account name “AN2” corresponding to the user in the account selection screen SC4. Since the account selection screen SC4 includes the service OB corresponding to the target service, the user can easily understand the target service when viewing the account selection screen SC4. Therefore, the user can appropriately select the user’s account name “AN2” for receiving the target service. Further, since each face OB is arranged near each account name in the account selection screen SC4, the user can appropriately select the user’s account name “AN2” which is arranged near the user’s face OB.

[0129] In S98, the CPU 32 of the multifunction device 10 supplies selection information including the target account name “AN2,” the target password “PN2,” the target face URL “UF2,” and the target service URL “USE” to the mediation server 50. The target account name “AN2” is an account name selected in S96. The target password “PN2” is a password associated with the target account name “PN2” in the service user table 40 (see FIG. 2). The target face URL “UF2” is a URL associated with the target account name “PN2” in the table of FIG. 5 within the account selection screen information.

[0130] When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 generates communication selection screen information in S102. Then, the CPU 72 supplies the communication selection screen information to the multifunction device 10 in S106. The communication selection screen information is information for causing the display unit 14 of the multifunction device 10 to display a communication selection screen (see SC8 of FIG. 9) and, specifically, is generated as follows.

[0131] The CPU 72 of the mediation server 50 determines one layout ID “LY2” (see FIG. 2). Also, the CPU 72 generates communication selection screen information including at least a character string “Download Print” indicating the DP, the target face URL “UF2” within the selection information of S98, the target service URL “USE” within the selection information of S98, and the layout ID “LY2.” Further, when the target SP server 100 is capable of executing the image data storage function, the CPU 72 generates communication selection screen information further including a character string “Scan Upload” indicating the SP. However, when the target SP server 100 is incapable of executing the image data storage function, the CPU 72 generates communication selection screen information not including character string “Scan Upload” indicating the SP. This is because the target SP server 100 is incapable of executing the image data storage function, and thus, the multifunction device 10 is incapable of executing the SU.

[0132] When the CPU 32 of the multifunction device 10 acquires the communication selection screen information from the mediation server 50, the CPU 32 supplies a combined data request including two URLs “UF2” and “USE” within the communication selection screen information to the mediation server 50 in S110.

[0133] When the CPU 72 of the mediation server 50 acquires the combined data request from the multifunction device 10, the CPU 72 acquires two pieces of image data identified by the two URLs “UF2” and “USE” within the combined data request from the service OB table 76 and the face OB table 78 (see FIG. 3). Also, the CPU 72 generates the combined data indicating a combined OB by combining the two pieces of image data. Then, the CPU 72 supplies the combined data to the multifunction device 10 in S112.

[0134] When the CPU 32 of the multifunction device 10 acquires the combined data from the mediation server 50, the CPU 32 generates display data indicating the communication selection screen (see SC5 of FIG. 9) in S114. Specifically, the CPU 32 acquires the layout data (see FIG. 2) identified by the
layout ID "LY2" from the memory 34. The CPU 32 describes a character string "Download Print" within the communication selection screen information in the area A4. Further, when a character string "Scan Upload" is included in the communication selection screen information, the CPU 32 describes the character string "Scan Upload" in the area A5. However, when the character string "Scan Upload" is not included in the communication selection screen information, the CPU 32 describes no character string in the area A5.

Further, the CPU 32 describes the acquired combined data in the area A6. Accordingly, the display data is completed. The CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the communication selection screen SC5 of FIG. 9. The communication selection screen SC5 includes the character string "Download Print," the character string "Scan Upload," the combined OB, and the back button. The communication selection screen SC5 is a screen for selecting any one of image data downloading communication and image data uploading communication.

In S116 of FIG. 5, the user selects the DP or the SU in the communication selection screen SC5. Hereinafter, communication (that is, the DP or the SU) selected in the communication selection screen SC5 is referred to as "target communication." Since the communication selection screen SC5 includes the combined OB, and the combined OB includes the service OB corresponding to the target service (see FIG. 9), the user can easily understand the target service when viewing the communication selection screen SC5. Therefore, the user can select the target communication while recognizing the target service. Further, the user can confirm that the face OB included in the combined OB is the face OB of the user. That is, the user can confirm whether the target account name "AN2" of the user is selected in the account selection screen SC4 (see FIG. 9). When the DP is selected in the communication selection screen SC5, each process of FIG. 6 is executed, and when the SU is selected, each process of FIG. 7 is executed.

In S116 of FIG. 5; FIG 6)

When the DP is selected in S116 of FIG. 5, the CPU 32 of the multifunction device 10 supplies selection information indicating the DP as the target communication to the mediation server 50 in S120, as illustrated in FIG. 6.

When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 executes a determination of the target SFL information (see S16 of FIG. 4) and determines "OK" or "NG" as a determination result in S130. The determination result of S130 indicates whether the multifunction device 10 is capable of executing the DP based on the target SFL information. When the print permission information within the target SFL information indicates "NG," the CPU 72 determines "NG" as a determination result. In this case, although not illustrated, the CPU 72 supplies error information for causing display of an error screen SCE of FIG. 9 to the multifunction device 10. That is, the CPU 72 ends the process according to the initial request of S16 in FIG. 4 without supplying each piece of screen information to be described below (see, for example, S142 and S172) to the multifunction device 10. On the other hand, when the print permission information within the target SFL information indicates "OK," the CPU 72 determines "OK" as a determination result. In this case, the CPU 72 supplies a thumbnail URL request including the target account name "AN2" and the target password "PN2" (see S98 of FIG. 5) to the target SP server 100 in S132.

When the target SP server 100 acquires the thumbnail URL request from the mediation server 50, the target SP server 100 executes authentication using the target account name "AN2" and the target password "PN2" within the thumbnail URL request. Further, when the mediation server 50 or the multifunction device 10 supplies a request (for example, S150 of FIGS. 6 and S232 of FIG. 7) to the SP server 100, the object account name "AN2" and the object password "PN2" are included in the request, and the authentication is executed by the object SP server 100. However, a description of the authentication will be hereinafter omitted. When the authentication succeeds, the target SP server 100 supplies X URLs indicating locations of X pieces of thumbnail image data (X is an integer equal to or more than 1) to the mediation server 50 in S134. The X pieces of thumbnail image data are obtained by reducing X pieces of image data stored in the target SP server 100 in association with the target account name "AN2."
In the example of FIG. 10, the image selection screen SC7 includes three thumbnail images indicating figures, such as a star.

In FIG. 6, the user selects a desired thumbnail image (for example, the figure of the star) in the image selection screen SC7. In this case, the CPU 32 of the multifunction device 10 supplies the selection information including an image ID “ID11” to the mediation server 50 in S158. The image ID “ID11” is an image ID associated with the thumbnail image data indicating the thumbnail image selected by the user among the X image IDs included in the X pieces of image information of SC152.

When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 supplies a DL (Download) URL request including the image ID “ID11” within the selection information to the target SP server 100 in S160.

When the target SP server 100 acquires the DL URL request from the mediation server 50, the target SP server 100 supplies the DL URL to the mediation server 50 in S162. The DL URL is a URL indicating a location of image data identified by the image ID “ID11”, that is, a location of the image data which is a download target.

In S170, the CPU 72 of the mediation server 50 generates print conditions screen information. The print conditions screen information is information for causing the display unit 14 of the multifunction device 10 to display a print conditions screen (see SC8 of FIG. 10). Specifically, the CPU 72 determines one layout ID “LY4” (see FIG. 2), and generates print conditions screen information including respective character strings indicating respective items (that is, image quality, paper, and size) of the print conditions, each option of each item, and the layout ID “LY4”. However, the layout data (see FIG. 2) identified by the layout ID “LY4” does not include an area for displaying a service OB corresponding to the target service name “SVE.” Therefore, the CPU 72 generates the print conditions screen information not including the target service URL “USE.” Then, the CPU 72 supplies the print conditions screen information to the multifunction device 10 in S172.

When the CPU 32 of the multifunction device 10 acquires the print conditions screen information from the target SP server 100, the CPU 32 generates display data indicating the print conditions screen (see SC8 of FIG. 10) in S174. Specifically, the CPU 32 first acquires the layout data (see FIG. 2) identified by the layout ID “LY4” from the memory 34. The acquired layout data includes the two areas A10 and A11, as illustrated in FIG. 2. The CPU 32 describes each character string within the print conditions screen information in the area A10 and describes each option within the print conditions screen information in the area A11. Accordingly, the display data is completed. The CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the print conditions screen SC8 of FIG. 10.

In S176 of FIG. 6, the user selects desired print conditions in the print conditions screen SC8. Further, for an item “Image quality,” either “Fine” or “Normal” can be selected. For an item “Paper,” one of a plurality of paper types, including “Common paper” and “Glossy paper,” can be selected. For an item “size”, one of a plurality of paper sizes, including “A4” and “B4,” can be selected. In S178, the CPU 32 of the multifunction device 10 supplies selection information including the selected print conditions to the mediation server 50.

When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 supplies a DP instruction to the multifunction device 10 in S180. The DP instruction includes the DL URL of S162 and the print conditions within the selection information of S178. The DP instruction is a command to instruct the multifunction device 10 to download the image data identified by the DL URL and to print the image indicated by the image data according to the print conditions.

When the CPU 32 of the multifunction device 10 acquires the DP instruction from the mediation server 50, the CPU 32 supplies a DL request including the DL URL within the DP instruction to the target SP server 100 in S190.

When the target SP server 100 acquires the DL request from the multifunction device 10, the target SP server 100 supplies the image data identified by the DL URL within the DL request to the multifunction device 10 in S192. That is, the target SP server 100 executes the image data supplying function.

When the CPU 32 of the multifunction device 10 acquires (that is, downloads) the image data from the target SP server 100, the CPU 32 causes the print execution unit 16 to execute printing of the image represented by the acquired image data in S194. Specifically, the CPU 32 executes image processing for printing for the acquired image data using the print conditions within the DP instruction of S180 and generates print data. The image processing for printing includes half tone processing for the acquired image data that is RGB image data having a number of gradations (for example, 256 gradations). Accordingly, print data having relatively less gradations (for example, ON or OFF of a dot) is generated. Further, the image processing for printing includes generating print data having high definition when “Image quality” included in the print conditions indicates “Fine,” and includes generating print data having low resolution when “Image quality” included in the print conditions indicates “Normal.” Further, the image processing for printing includes generating print data suitable for an aspect ratio corresponding to the “Size” included in the print conditions. Also, the CPU 32 instructs the print execution unit 16 to convey the print paper of a type indicated by “Paper” included in the print conditions, and supplies the generated print data to the print execution unit 16. Accordingly, the print execution unit 16 executes printing for the print paper having the acquired print data. As a result, the user can acquire print paper in which an image represented by the image data stored in the target SP server 100 (for example, an image corresponding to a thumbnail image indicating a figure of a star selected in S156) has been printed.

(Case in which SU is Selected in S116 of FIG. 5; FIG. 7)

When the SU is selected in S116 of FIG. 5, the CPU 32 of the multifunction device 10 supplies the selection information indicating the SU as a target communication to the mediation server 50 in S220, as illustrated in FIG. 7.

When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 executes a determination of the target SFL information (see S16 of FIG. 4) and determines “OK” or “NG” as a determination result in S230. The determination result of S230 indicates whether the multifunction device 10 is capable of executing the SU. When the scan permission information within the target SFL information indicates “NG,” the CPU 72 determines “NG” as a determination
result. In this case, although not illustrated, the CPU 72 supplies error information for causing display of an error screen SCE of FIG. 9 to the multifunction device 10. That is, the CPU 72 ends the process according to the initial request of S16 of FIG. 4 without supplying each piece of screen information to be described below (see, for example, S242 and S272) to the multifunction device 10. On the other hand, when the scan permission information within the target SFL information indicates “OK,” the CPU 72 determines “OK” as a determination result. In this case, the CPU 72 supplies an FD (Folder) information request including the target account name “AN2” and the target password “PN2” (see S98 of FIG. 5) to the target SP server 100 in S232.

[0157] When the target SP server 100 acquires the FD information request from the mediation server 50, the target SP server 100 supplies Y pieces of FD information to the mediation server 50 in S234. The Y pieces of FD information are information on Y folders (that is, a folder name and a folder ID) stored in the target SP server 100 in association with the target account name “AN2.”

[0158] When the CPU 72 of the mediation server 50 acquires the Y pieces of folder information from the SP server 100, the CPU 72 generates FD selection screen information in S240. The FD selection screen information is information for causing the multifunction device 10 to display the FD selection screen (see SC9 of FIG. 10). Specifically, the CPU 72 determines one layout ID “LY3” (see FIG. 2) and generates FD selection screen information including the Y pieces of folder information of S234 and the layout ID “LY3.” The FD selection screen information does not include the target service URL “USE.” Then, the CPU 72 supplies the FD selection screen information to the multifunction device 10 in S242.

[0159] In S254, when the CPU 32 of the multifunction device 10 acquires the FD selection screen information from the mediation server 50, the CPU 32 generates display data indicating the FD selection screen (see SC9 of FIG. 10). Specifically, the CPU 32 generates the layout data (see FIG. 2) identified by the layout ID “LY3” from the memory 34. The CPU 32 adds the respective folder names included in the respective pieces of FD information within the FD selection screen information to the respective areas A7 to A9. Accordingly, the display data is completed. The CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the FD selection screen SC9 of FIG. 10. The FD selection screen SC9 includes three folders names “F1” to “F3.”

[0160] In S256 of FIG. 7, the user selects the desired folder name “F1” in the FD selection screen SC9. In this case, the CPU 32 of the multifunction device 10 supplies selection information including the folder ID “IDDD” to the mediation server 50 in S258. The folder ID “IDDD” is a folder ID associated with the folder name “F1” selected by the user among the Y folder IDs included in the Y pieces of FD information of S242.

[0161] When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 supplies a UL (Upload) URL request including the folder ID “IDDD” within the selection information to the target SP server 100 in S260.

[0162] When the target SP server 100 acquires the UL URL request from the mediation server 50, the target SP server 100 supplies a UL URL to the mediation server 50 in S262. The UL URL is a URL indicating a location within the folder identified by the folder ID “IDDD,” that is, a location in which image data to be uploaded from the multifunction device 10 is to be stored.

[0163] In S276, the CPU 72 of the mediation server 50 generates scan conditions screen information. The scan conditions screen information is information for causing the multifunction device 10 to display a scan conditions screen (see SC10 of FIG. 10). Specifically, the CPU 72 determines one layout ID “LY4” (see FIG. 2) and generates scan conditions screen information including respective character strings indicating respective items (that is, resolution, a form, and a size) of the scan conditions, each option of each item, and the layout ID “LY4.” The scan conditions screen information does not include the target service URL “USE.” Then, the CPU 72 supplies the scan conditions screen information to the multifunction device 10 in S272.

[0164] When the CPU 32 of the multifunction device 10 acquires the scan conditions screen information from the target SP server 100, the CPU 32 generates display data indicating the scan conditions screen (see SC10 of FIG. 10) in S274. Specifically, the CPU 32 first acquires the layout data (see FIG. 2) identified by the layout ID “LY4” from the memory 34. The CPU 32 describes each character string within the scan conditions screen information in the area A10 (see FIG. 2) and describes each option within the scan conditions screen information in the area A11 (see FIG. 2). Accordingly, the display data is completed. The CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the scan conditions screen SC10 of FIG. 10.

[0165] In S276 of FIG. 7, the user selects desired scan conditions in the scan conditions screen SC10. Further, for an item “Resolution,” one of a plurality of scan resolutions, including “600 dpi” and “300 dpi,” can be selected. For an item “Form,” one of a plurality of file formats, including “PDF” and “JPEG,” can be selected. For an item “Size,” one of a plurality of document sizes, including “A4” and “A3,” can be selected. In S278, the CPU 32 of the multifunction device 10 supplies the selection information including the selected scan conditions to the mediation server 50.

[0166] When the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 supplies an SU instruction to the multifunction device 10 in S280. The SU instruction includes the UL URL of S262 and the scan conditions within the selection information of S278. The SU instruction is a command to instruct the multifunction device 10 to execute the scanning of the document according to the scan conditions to generate image data, and to upload the image data in the location indicated by the UL URL.

[0167] When the CPU 32 of the multifunction device 10 acquires the SU instruction from the mediation server 50, the CPU 32 causes the scan execution unit 18 to execute the scanning of the document according to the scan conditions within the SU instruction in S290. Specifically, the CPU 32 notifies the scan execution unit 18 of a scan resolution indicated by “Resolution” included in the scan conditions, and a document size indicated by “Size” included in the scan conditions. Accordingly, the scan execution unit 18 scans the document having the document size with the scan resolution to generate scan data. Then, the CPU 32 executes image processing for scanning for the scan data to generate the image data. The image processing for scanning includes generating image data having the file format indicated by “Form”
When the target SP server 100 acquires the UL request from the multifunction device 10, the target SP server 100 stores the image data within the UL request in a location indicated by the UL URL within the UL request. That is, the target SP server 100 executes the image data storage function. 

When “Scan” is selected in the main screen SCI, the CPU 32 supplies an UL request including the UL URL and the image data to the target SP server 100 in S292.

Next, each process executed when “Scan” is selected in the main screen SCI (see FIG. 8) will be described with reference to FIG. 8. Hereinafter, description of the same process as that in FIGS. 4 to 7 will be omitted. S310 and S312 are the same as S510 and S512 of FIG. 4. In S313, the user selects an object indicating “Scan” in the main screen SCI. In this case, the CPU 32 of the multifunction device supplies data stored in the memory 34 in advance to the display unit 14 and causes the display unit 14 to display the storage method selection screen SC11 of FIG. 9 in S314. The storage method selection screen SC11 is a screen for selecting a storage destination of image data generated by document scanning, and includes three objects. An object indicating “Scan to USB” is an object indicating execution of storage of the image data in a USB memory. An object indicating “Scan to Email” is an object indicating execution of E-mail transmission of the image data. An object indicating “Scan to Web” is an object indicating execution of storage (that is, upload) of the image data in the SP server 100.

In S315 of FIG. 8, the user selects the object indicating “Scan To Web” in the storage method selection screen SC11. In this case, the CPU 32 of the multifunction device 10 supplies the initial request to the mediation server 50 in S316. The initial request includes a MAC address “M1” of the multifunction device 10, scan mode information, and target SFL information. The scan mode information is information included in the initial request when the object indicating “Scan To Web” is selected in the storage method selection screen SC11.

When the CPU 72 of the mediation server 50 acquires the initial request from the multifunction device 10, the CPU 72 executes a determination of the target SFL information and determines “OK” or “NG” as a determination result in S321. The determination result of S321 indicates whether the multifunction device 10 is capable of executing the SU. When the scan permission information within the target SFL information indicates “NG,” the CPU 72 determines “NG” as a determination result. In this case, although not illustrated, the CPU 72 supplies error information for causing display of an error screen SCE of FIG. 9 to the multifunction device 10. That is, the CPU 72 ends the process according to the initial request of S316 of FIG. 8 without supplying each piece of screen information to be described below (see, for example, S334 to S340) to the multifunction device 10. On the other hand, when the scan permission information within the target SFL information indicates “OK,” the CPU 72 determines “OK” as a determination result. In this case, each process of S322, S324, and S330 is executed, similar to S22, S24, and S30 of FIG. 4.

As described above, in the case of FIG. 8, when the CPU 72 of the mediation server 50 acquires the initial request including the scan mode information from the multifunction device 10, the CPU 72 executes a determination of the target SFL information (see S321). Accordingly, the multifunction device 10 can rapidly notify the user that the multifunction device 10 is incapable of executing the SU. On the other hand, in the case of FIG. 4, even when the CPU 72 acquires the initial request including the normal mode information (see S16) from the multifunction device 10, the CPU 72 does not execute the determination of the target SFL information. This is because which of the DP and the SU that the user of the multifunction device 10 desires to execute is still unknown. That is, the initial request of S16 of FIG. 4 is a request supplied from the multifunction device 10 to the mediation server 50 in a state in which either the DP or the SU to be executed (in other words, either the image processing for printing or image processing for scanning to be executed) has been not yet selected by the user. On the other hand, in the initial request of S316 of FIG. 8 is a request supplied from the multifunction device 10 to the mediation server 50 in a state in which the SU among the DP and the SU being to be executed (in other words, image processing for scanning to be executed) has been selected by the user.

In S332, the CPU 72 of the mediation server 50 generates service selection screen information including a table of FIG. 8 and the layout ID “LY4.” Specifically, when the CPU 72 generates the table of FIG. 8, the CPU 72 first excludes service OB information corresponding to the SP server 100 incapable of executing the data storage function from each piece of acquired service OB information. In this embodiment, the SP server 100 corresponding to the service name “SVB” is incapable of executing the data storage function (that is, capable of executing only the data supply function). Therefore, the CPU 72 excludes the service OB information including the service name “SVB” from each piece of acquired service OB information. Then, the CPU 72 generates a table using each piece of remaining service OB information and the acquired history OB information. Further, since a response of S324 indicates “No registration,” the flag “ON” is described in the top column of the table, as in S32 of FIG. 4.

As described above, in the case of FIG. 8, when the CPU 72 of the mediation server 50 acquires the initial request including the scan mode information from the multifunction device 10, the CPU 72 generates a table in which information on the service name “SVB” of the SP server 100 incapable of executing the data storage function is not described. As a result, the service name “SVB” is not displayed in the service selection screen (see S12 and S13 of FIG. 9) to be described below. Accordingly, it is possible to suppress occurrence of a situation in which the service name “SVB” of the SP server 100 incapable of executing the data storage function is selected, that is, a situation in which the service name “SVB” for which the multifunction device 10 is incapable of executing the SU is selected.

S334 is the same as S34 of FIG. 4. Further, S340 to S354 are the same as S40 to S54 of FIG. 4 except that a matter regarding the service name “SVB” is not included. As illustrated in FIG. 9, the service selection screen SC12 displayed first in the multifunction device 10 includes three service names “SVA,” “SVC,” and “SVD,” without including the service name “SVB,” unlike the service selection screen SC2. Further, a service selection screen SC13 displayed next in the multifunction device 10 includes only two service names “SVE” and “SVB,” unlike the service selection screen SC3.

In S356 of FIG. 8, the user selects the service having the service name “SVE” in the service selection screen SC13. In this case, the CPU 32 of the multifunction device 10 sup-
plies selection information including the target service name “SVE” to the mediation server 50 in S358.

[0177] Even when the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 does not execute a determination of the target SFL information. This is because the determination of the target SFL information has been executed in S321. This is different from S60 of FIG. 4. S70 to S98 of FIG. 5 are then executed. However, S104 to S116 of FIG. 8 are not executed and S220 and S230 of FIG. 7 are not executed. Also, S232G, S292 of FIG. 7 are executed. That is, the account selection screen SC4 of FIG. 9 is displayed, and then the FD selection screen SC9 of FIG. 10 is displayed without the communication selection screen SC5 being displayed. This is because the user is known to desire execution of the SU, and thus, it is unnecessary to display the communication selection screen SC5. Accordingly, the user does not select the SU in the communication selection screen SC5. That is, an unnecessary operation for a user is not executed, thereby improving convenience of the user.

[0178] (Case (1) in which Service Name “SVE” is Registered in DB Server 80; FIG. 11)

[0179] As described above, the selected service information in which the MAC address “M1” of the multifunction device 10 and the service name “SVE” are associated is registered in the selected service table 82 within the DB server 80 in S72 of FIG. 5. Then, the multifunction device 10 executes the DP or the SU (see FIG. 6 or 7). Each subsequent process will be described with reference to FIG. 11.

[0180] S510 to S522 are the same as S10 to S22 of FIG. 4. In S524, the CPU 72 of the mediation server 50 acquires a response including the service name “SVE” from the DB server 80. S530 to S542 are the same as S30 to S42 of FIG. 4. However, the CPU 72 generates a table in which the flag “ON” is associated with the service name “SVE” since the service name “SVE” is included in the above response in S532.

[0181] In S550, the CPU 32 of the multifunction device 10 causes the service selection screen SC3 to be displayed first. This is because the flag “ON” is associated with the service name “SVE” in the table of FIG. 11. Accordingly, the user can first view the service selection screen SC3 including the previously selected service name “SVE.” Therefore, when the user desires to select the same service name as the previously selected service name “SVE” again, the user can easily select the service name “SVE.” Further, when the screen change button is selected in S552, the CPU 32 causes the service selection screen SC2 to be displayed in S554. Each subsequent process is the same as each process subsequent to S56 of FIG. 4.

[0182] (Case (2) in which Service Name “SVE” is Registered in DB Server 80; FIG. 12)

[0183] In the case of FIG. 11, “Web” is selected in the main screen SC1 in a state in which the service name “SVE” is registered in the DB server 80 in association with the MAC address “M1” (see S514 of FIG. 11). On the other hand, in the case of FIG. 12, “Scan” is selected in the main screen SC1 in a state in which the service name “SVE” is registered in the DB server 80 in association with the MAC address “M1.”

[0184] S610 to S622 are the same as S310 to S322 of FIG. 8. In S624, the CPU 72 of the mediation server 50 acquires a response including the service name “SVE” from the DB server 80. S630 to S642 are the same as S330 to S342 of FIG. 8. However, the CPU 72 generates a table in which the flag “ON” is associated with the service name “SVE” since the service name “SVE” is included in the response in S632. Therefore, the CPU 32 of the multifunction device 10 causes the service selection screen SC13 including the service name “SVE” to be displayed first in S650. Also, when the screen change button is selected in S652, the CPU 32 causes the service selection screen SC12 to be displayed first in S654. Each subsequent process is the same as each process subsequent to S656 of FIG. 8.

[0185] (Case in which Service Name “SVB” is Registered in the DB Server 80; FIG. 13)

[0186] In this case, “Scan” is selected in the main screen SC1 in a state in which the service name “SVB” is registered in the DB server 80 in association with the MAC address “M1.” Among respective processes of FIG. 13, the same processes as those in FIG. 12 are denoted with the same step numbers as those in FIG. 12. Hereinafter, only S625, S633, S651, and S655 will be described.

[0187] In S625, the CPU 72 of the mediation server 50 acquires the response including the service name “SVB” from the DB server 80. In S633, since the service name “SVB” is included in the response but is not present in the table, the CPU 72 of the mediation server 50 generates a table in which the flag “ON” is associated with the service name “SVA” in the top column. Therefore, the CPU 32 of the multifunction device 10 causes the service selection screen SC12 including the service name “SVA” to be displayed first in S651. Also, when the screen change button is selected in S652, the CPU 32 causes the service selection screen SC13 to be displayed in S655.

[0188] In the case of FIG. 12, since the service name “SVE” registered in the DB server 80 is included in the table, the mediation server 50 generates a table in which the flag “ON” is associated with the service name “SVE.” On the other hand, in the case of FIG. 13, when the service name “SVB” registered in the DB server 80 is not included in the table, the mediation server 50 generates the table in which the flag “ON” is associated with the service name “SVA” in the top column. Thus, the mediation server 50 can appropriately determine an order in which the multifunction device 10 displays the service selection screens SC12 and SC13.

[0189] (Case in which Back Button is Selected in Account Selection Screen SC4; FIG. 14)

[0190] Next, each process when the back button is selected in the account selection screen SC4 will be described. In this case, S10 to S60 of FIG. 4 and S70 to S94 of FIG. 5 are executed. Therefore, the service name “SVE” is registered in association with the MAC address “M1” to the DB server 80 in S72 of FIG. 5. In S700, the user selects the back button in the account selection screen SC4. In this case, the CPU 32 of the multifunction device 10 supplies a return request to the mediation server 50 in S702.

[0191] When the CPU 72 of the mediation server 50 acquires the return request from the multifunction device 10, the CPU 72 supplies an information request including the MAC address “M1” to the DB server 80 in S722. In S724, the CPU 72 acquires a response including the service name “SVE” from the DB server 80. S732 to S742 are the same as S532 to S542 of FIG. 11. Since the service name “SVE” is included in the response, the CPU 72 generates a table in which the flag “ON” is associated with the service name
“SVE” in S732. Therefore, the CPU 32 of the multifunction device 10 causes the display service selection screen SC3 including the service name “SVE” to be displayed first in S750. Each subsequent process is the same as each process subsequent to S56 of FIG. 4.

[0192] As described above, in this case, when the service name “SVE” is selected in the service selection screen SC3, the service name “SVE” is registered in the DB server 80 before the account selection screen SC4 is displayed (see S72 of FIG. 5). Therefore, when the back button is selected in the account selection screen SC4, the mediation server 50 can acquire the service name “SVE” from the DB server 80 (see S724), and as a result, can cause the multifunction device 10 to first display the service selection screen SC3 including the service name “SVE.” Therefore, the user can easily understand the service name “SVE” selected by the user.

[0193] (Case in which “History” is Selected in service Selection Screen SC3; FIG. 15)

[0194] Next, each process when the service name “history” is selected in the service selection screen SC3 will be described. In this case, S10 to S54 of FIG. 4 are executed. In S800, the user selects the service name “history” in the service selection screen SC3. In this case, the CPU 32 of the multifunction device 10 supplies selection information including the service name “history” and a model name “MD” of the multifunction device 10 to the mediation server 50.

[0195] Even when the CPU 72 of the mediation server 50 acquires the selection information from the multifunction device 10, the CPU 72 does not register the service name “history” in the DB server 80. This is different from S70 of FIG. 5. In S804, the CPU 72 supplies history screen information to the multifunction device 10. The history screen information is information for causing a history screen SC14 to be displayed, and includes update history information, and a layout ID “LYS.” The update history information is information corresponding to the model name “MD” of the multifunction device 10, and is stored in the memory 74 in advance (not illustrated). The update history information is information on a history indicating a service supported by the multifunction device (for example, 10) having the model name “MD,” and time when the service is supported. Further, the layout ID “LYS” is not illustrated in FIG. 2.

[0196] When the CPU 32 of the multifunction device 10 acquires the history screen information from the mediation server 50, the CPU 32 generates display data for causing the display unit 14 to display the history screen SC14 in S806. That is, the CPU 32 acquires the layout data identified by the layout ID “LYS” from the memory 34 and describes history information within the history screen information in the acquired layout data. Also, the CPU 32 supplies the display data to the display unit 14 and causes the display unit 14 to display the history screen SC14. In S808, the user selects the back button in the history screen SC14. In this case, the CPU 32 supplies a return request to the mediation server 50 in S810.

[0197] When the CPU 72 of the mediation server 50 acquires the return request from the multifunction device 10, the CPU 72 generates service selection screen information in S832. S832 to S842 are the same as S32 to S42 of FIG. 4. However, when the CPU 72 acquires the return request after supplying the history screen information, the CPU 72 generates a table in which the flag “ON” is associated with the service name “history.” Therefore, the CPU 32 of the multifunction device 10 first display the service selection screen SC3 including the service name “history” in S850. Each subsequent process is the same as each process subsequent to S56 of FIG. 4.

[0198] In this case, even when the service name “history” is selected in the service selection screen SC3, the service name “history” is not registered in the DB server 80, as described above. A reason therefor is as follows. That is, since the plurality of services that can be provided by the plurality of SP servers 100 are services related to the DP or the SU, the user is highly likely to fail in remembering the previously selected service in a situation in which one service is to be selected from the plurality of services. Therefore, in this embodiment, a configuration in which the target service name is registered in the DB server 80 (see S72 of FIG. 5) is adopted, and the service selection screen including the target service name is displayed first (see S550 of FIG. 11). Accordingly, the user can easily remember the previously selected service name when viewing the first displayed service selection screen and, as a result, easily select the service name as a previously selected service name. Accordingly, the history supply service is not the service related to the DP or the SU, unlike each service provided by each SP server 100. Accordingly, the user can recognize the history supply service from the plurality of services. Therefore, when the user desires to view the history screen SC14, the user can select the screen change button to switch the service selection screen and easily select the service name “history” even when the service selection screen including the service name “history” is not displayed first. In view of this circumstance, the service name “history” is not registered in the DB server 80 in this embodiment.

[0199] Further, when the service selection screen SC2 different from the service selection screen SC3 displayed immediately before the history screen SC14 is displayed despite the back button being selected in the history screen SC14, a sense of discomfort is likely to be given to the user. In order to prevent this, in this embodiment, when the back button is selected in the history screen SC14 (see S808 of FIG. 15), the mediation server 50 causes the multifunction device 10 to first display the service selection screen SC3 including the service name “history” despite no service name “history” being registered in the DB server 80. Accordingly, the service selection screen SC3 displayed immediately before the history screen SC14 can be provided to the user and the sense of discomfort can be prevented from being given to the user.

[0200] (Each Process Executed by the Mediation Server 50; FIG. 16)

[0201] FIG. 16 illustrates a flowchart of each process executed by the CPU 72 of the mediation server 50. Respective cases of FIGS. 4 to 8 and FIGS. 11 to 15 are realized by the CPU 72 executing respective processes according to the flowchart.

[0202] In T10, the CPU 72 acquires the initial request from the multifunction device 10. T10 corresponds to S16 of FIG. 4, S316 of FIG. 8, S516 of FIG. 11, and S616 of FIGS. 12 and 13. In T12, the CPU 72 determines whether the scan mode information is included in the initial request. When the scan mode information is included in the initial request, the CPU 72 determines YES in T12 and proceeds to T14. On the other hand, when the normal mode information is included in the initial request, the CPU 72 determines NO in T12, skips T14, and proceeds to T18.
In T14, the CPU 72 executes a determination of the target SFL information. T14 corresponds to S321 of FIG. 8. When the CPU 72 determines the determination result “N,” the CPU 72 determines NO in T14, supplies error information to the multifunction device 10 in T16, and ends the process. T16 corresponds to “NG” being determined (not illustrated) in S321 of FIG. 8. On the other hand, when the CPU 72 determines the determination result “OK,” the CPU 72 determines YES in T14 and accesses the DB server 80 in T18. T18 corresponds to S22 of FIG. 4, S322 of FIG. 8, S352 of FIG. 11, and S622 of FIGS. 12 and 13.

In T20, the CPU 72 generates service selection screen information including the flag “ON” according to content of the response acquired from the DB server 80 in T18 and supplies the service selection screen information to the multifunction device 10. T20 corresponds to S32 and S34 of FIGS. 4, S332 and S334 of FIGS. 8, S532 and S534 of FIG. 11, and S633 and S634 of FIGS. 12 and 13. Further, when the scan mode information is included in the initial request of T10, the CPU 72 generates service selection screen information in which the service name corresponding to the SP server incapable of executing the image data storage function has been excluded in T20. This exclusion of the service name corresponds to S332 of FIG. 8 and S633 of FIGS. 12 and 13.

In T22, the CPU 72 waits for the selection information to be acquired from the multifunction device 10. When the CPU 72 acquires the selection information from the multifunction device 10 (YES in T22), the CPU 72 determines whether the service name included in the selection information is “history” in T24. When the service name included in the selection information is “history,” the CPU 72 determines YES in T24 and proceeds to T30. The case in which YES is determined in T24 corresponds to the case of FIG. 15. On the other hand, when the service name included in the selection information is a name different from “history,” the CPU 72 determines NO in T24 and proceeds to T40. The case in which NO is determined in T24 corresponds to each case of FIGS. 4 and 8.

In T30, the CPU 72 generates history screen information and supplies the history screen information to the multifunction device 10. T30 corresponds to S804 of FIG. 15. In T32, the CPU 72 waits for the return request to be acquired from the multifunction device 10. When the CPU 72 acquires the return request from the multifunction device 10 (YES in T32), the CPU 72 generates service selection screen information including the flag “ON” associated with the service name “history” and supplies the service selection screen information to the multifunction device 10 in T34. T34 corresponds to S832 and S834 of FIG. 15. When T34 ends, the process returns to T22.

In T40, the CPU 72 determines whether the normal mode information is included in the initial request of T10. When the normal mode information is included in the initial request, the CPU 72 determines YES in T40 and executes a determination of the target SFL information in T42. T42 corresponds to S60 of FIG. 4. When the CPU 72 determines the determination result “NG,” the CPU 72 determines NO in T42, supplies error information to the multifunction device 10 in T16, and ends the process. T16 executed in the case of NO in T42 corresponds to S62 of FIG. 4. On the other hand, when the CPU 72 determines the determination result “OK,” the CPU 72 determines YES in T42 and registers the target service name in the DB server 80 in T44. T44 corresponds to S70 of FIG. 5. Further, when the scan mode information is included in the initial request, the CPU 72 determines NO in T40, skips T42, and proceeds to T44. Skipping T42 corresponds to the determination of the target SFL information being not executed when the selection information of S358 of FIG. 8 is acquired. When T44 ends, the process proceeds to T50 of FIG. 17.

(Each process continued from FIG. 16; FIG. 17) In T50, the CPU 72 generates account selection screen information and supplies the account selection screen information to the multifunction device 10, as illustrated in FIG. 17. T50 corresponds to S80 and S82 of FIG. 5. The CPU 72 monitors acquiring the return request or the selection information from the multifunction device 10 in T52 and T54. When the CPU 72 acquires the return request from the multifunction device 10 (YES in T52), the CPU 72 proceeds to T118 of FIG. 16, and when the CPU 72 acquires the selection information from the multifunction device 10 (YES in T54), the CPU 72 proceeds to T56. YES in T52 corresponds to a case in which the CPU 72 acquires the return request of S702 of FIG. 14. Further, YES in T54 corresponds to a case in which the CPU 72 acquires the selection information of S98 of FIG. 5.

In T56, the CPU 72 determines whether the normal mode information is included in the initial request of T10 of FIG. 16. When the normal mode information is included in the initial request, the CPU 72 determines YES in T56 and proceeds to T60. When the scan mode information is included in the initial request, the CPU 72 determines NO in T56, skips T60 to T66 and proceeds to T180. YES in T56 corresponds to a case in which the CPU 72 acquires the selection information of S98 of FIG. 5. Further, skipping of T60 to T66 in the case of NO in T56 corresponds to S104 to S116 of FIGS. 5 and 8 and S220 and S230 of FIG. 7 being not executed in the case of FIG. 8.

In T60, the CPU 72 generates communication selection screen information and supplies the communication selection screen information to the multifunction device 10. T60 corresponds to S104 and S106 of FIG. 5. In T62, the CPU 72 waits for the selection information to be acquired from the multifunction device 10. When the CPU 72 acquires the selection information from the multifunction device 10 (YES in T62), the CPU 72 executes a determination of the target SFL information in T64. T64 corresponds to S130 of FIGS. 6 and 8 and S230 of FIG. 7.

When the CPU 72 determines the determination result “N,” the CPU 72 determines NO in T64, supplies error information to the multifunction device 10 in T66 and T68 when the selection information of T62 indicates “SU” or “DP” in T66. Also, the CPU 72 proceeds to T70 when the selection information of T62 indicates “DP” and T80 when the selection information of T62 indicates “SU.”

In T70, the CPU 72 generates image selection screen information and supplies the image selection screen information to the multifunction device 10. T70 corresponds to S140 and S142 of FIG. 6. In T72, the CPU 72 generates print conditions screen information and supplies the print conditions screen information to the multifunction device 10. T72 corresponds to S170 and S172 of FIG. 6. In T74, the CPU 72 supplies a DP instruction to the multifunction device 10. T74 corresponds to S180 of FIG. 6. When T74 ends, the process according to the initial request of T10 of FIG. 16 ends.
In T80, the CPU 72 generates FD selection screen information and supplies the FD selection screen information to the multifunction device 10. T80 corresponds to S240 and S242 of FIG. 7. In T82, the CPU 72 generates scan conditions screen information and supplies the scan conditions screen information to the multifunction device 10. T82 corresponds to S270 and S272 of FIG. 7. In T84, the CPU 72 supplies an SU instruction to the multifunction device 10. T84 corresponds to S280 of FIG. 7. When T84 ends, the process according to the initial request of T10 of FIG. 16 ends.

The multifunction device 10 and the plurality of SP servers 100 are examples of an "image processing device" and "one or more service providing servers," respectively. The image processing for printing and the image processing for scanning are examples of "first type of image processing" and "second type of image processing," respectively. The image processing for scanning is an example of "specific type of image processing."

The main screen SCI and the storage method selection screen SCI1 of FIG. 9 are examples of a "first selection screen" and a "second selection screen," respectively. In the main screen SCI, the object indicating "Web" and the object indicating "Scan" are examples of a "first object" and a "second object," respectively. The three objects included in the storage method selection screen SCI1 are examples of "plurality of objects." The object indicating "Web" being selected in the main screen SCI (S14 of FIG. 4) or the object indicating "Scan To Web" being selected in the storage method selection screen SCI1 (S15 of FIG. 8) is an example of a "predetermined instruction." The initial request in S16 of FIG. 4 and the initial request in S316 of FIG. 8 are examples of a "first type of request" and a "second type of request," respectively.

The service selection screen information in S34 of FIG. 4, and the account selection screen information in S82 and the communication selection screen information in S106 of FIG. 5 are examples of "two or more pieces of screen information." Each piece of screen information in which the communication selection screen information is excluded from these pieces of selection screen information is an example of "one or more pieces of screen information." The selection information in S58 of FIG. 4 and the selection information in S120 of FIG. 6 (or the selection information in S220 of FIG. 7) are examples of "service selection information" and "communication selection information," respectively. The service selection screen information in S34 of FIG. 4 and the service selection screen information in S334 of FIG. 8 are examples of "first service selection screen information" and "second service selection screen information," respectively. In the service selection screen information in S334 of FIG. 8, the four services corresponding to the four service names "SVA," "SVC," "SVDP" and "SVE" are examples of "M services." Further, one service corresponding to the one service name "SVB" excluded in S332 of FIG. 8 is an example of "N services." Further, the SP server capable of executing the image data storage function and the SP server incapable of executing the image data storage function are examples of a "first type of service providing server" and a "second type of service providing server," respectively. In the service selection screen information in S34 of FIG. 4, the layout ID "LY1" and the five URLs "USA" to "USE" within the table are examples of "layout identification information" and "a plural pieces of service-related information," respectively.

S132, S134, S160, S162, and S180 of FIGS. 6 and 232, 234, 260, 262, and 280 of FIG. 7 are examples of "first mediation communication." S232, S234, S260, S262, and S280 of FIG. 7 are examples of "second mediation communication." Supply (S192 of FIG. 6) of the image data from the target SP server 100 to the multifunction device 10 and supply (S292 of FIG. 7) of the image data from the multifunction device 10 to the target SP server 100 are examples of "first type of communication" and "second type of communication," respectively. The image data in S192 and the image data in S292 are examples of "first type of target data" and "second type of target data," respectively. The determination in S130 of FIG. 6 or the determination in S230 of FIG. 7 is an example of a "first determination process." The determination in S321 of FIG. 8 is an example of a "second determination process."

Second Embodiment

FIG. 18

In the first embodiment, after the target service name "SVE" is selected in the service selection screen SC3 (see S56 of FIG. 4), the mediation server 50 may supply screen information including the target service URL "USE" to the multifunction device 10 (see S82 and S106 of FIG. 5) or may supply screen information not including the target service URL "USE" to the multifunction device 10 (see S142 and S172 of FIGS. 6 and 242 and S272 of FIG. 7). Also, when the multifunction device 10 acquires the screen information including the target service URL "USE," the multifunction device 10 displays the screens S4 and S5 and includes the service OB of the target service (see FIG. 9), and when the multifunction device 10 acquires the screen information not including the target service URL "USE," the multifunction device 10 displays the screens S7 to SC10 (see FIG. 10) that do not include the service OB of the target service. On the other hand, in this embodiment, even when any screen information should be supplied to the multifunction device 10 after the target service name "SVE" is selected in the service selection screen SC3 (see S56 of FIG. 4), the mediation server 50 supplies the screen information including the target service URL "USE" to the multifunction device 10. For example, the mediation server 50 supplies image selection screen information including the target service URL "USE" in S142 of FIG. 6, and supplies print conditions screen information including the target service URL "USE" in S172. Other processes of the mediation server 50 are the same as those in the first embodiment.

When the CPU 32 of the multifunction device 10 acquires any one piece of screen information from the mediation server 50, the CPU 32 executes the process of FIG. 18. In T100, the CPU 32 determines the layout ID included in the acquired screen information. Also, the CPU 32 proceeds to T102 when the layout ID is "LY1," T104 when the layout ID is "LY2," and T106 when the layout ID is "LY3" or "LY4."

In T102, the CPU 32 causes the display unit 14 to display the service selection screen (for example, SC2 and SC3 of FIG. 9). T102 is the same as, for example, S50 and S54 of FIG. 4, and in T104, the CPU 32 causes the display unit 14 to display the account selection screen SC4 or the communica-
function selection screen SC5 (see FIG. 9) according to the acquired screen information. T104 is the same as S94 or S114 of FIG. 5. That is, since the layout data identified by the layout ID “LY2” has the area A6 (see FIG. 2) in which the service OB of the target service can be arranged, the CPU 32 causes the display unit 14 to display the screens SC4 and SC5 including the service OB of the target service using the target service URL “USE” included in the acquired screen information in T104.

[0223] In T106, the CPU 32 causes the display unit 14 to display the image selection screen SC7, the print conditions screen SC8, the FD selection screen SC9 or the scan conditions screen SC10 (see FIG. 10) according to the acquired screen information. T106 is the same as S154 and S174 of FIG. 6 and S254 or S274 of FIG. 7. That is, since the layout data (see FIG. 2) identified by the layout ID “LY3” or “LY4,” does not have the area in which the service OB of the target service can be arranged, the CPU 32 causes the display unit 14 to display the screen SC7 which does not include the service OB of the target service without using the target service URL “USE” included in the acquired screen information in T106.

[0224] According to this embodiment, when the multifunction device 10 acquires the screen information from the mediation server 50, the multifunction device 10 determines whether the service OB of the target service can be included in the screen (T100). Also, when the multifunction device 10 determines that the service OB of the target service can be included in the screen (“LY2” in T100), the multifunction device 10 displays a screen including the service OB of the target service (T104). When the multifunction device 10 determines that the service OB of the target service cannot be included in the screen (“LY3” or “LY4” in T100), the multifunction device 10 displays the screen that does not include the service OB of the target service (T106). Thus, the multifunction device 10 can display an appropriate screen according to whether there is a space in which the service OB of the target service can be arranged.

[0225] While the specific examples of the present invention have been described in detail, these are only illustrative and do not limit the claims. Various variations and modifications of the specific examples illustrated above are included in the technology described in the claims. For example, the following modification examples are included.

Modification Example 1

[0226] In each embodiment, a plurality of SP servers 100 for which the mediation server 50 can execute mediation of the service are provided. Alternatively, only one SP server 100 for which the mediation server 50 can execute the mediation of the service may be provided. Also, one SP server 100 may be able to provide a plurality of services. In this case, in S32 of FIG. 4, the CPU 72 of the mediation server 50 may generate service selection screen information for selecting a target service from the plurality of services provided by the one SP server 100. That is, the number of SP servers for which the mediation server can mediate the provision of the service may be one or more. Incidentally, the mediation server 50 and the DB servers 80 may be formed together as a single apparatus.

Modification Example 2

[0227] In S32 of FIG. 4, the CPU 72 of the mediation server 50 may generate service selection screen information includ-
execution of the DP, and thus, it is not necessary to select "DP" in the communication selection screen. Also, the CPU 72 may execute each process subsequent to S132 of FIG. 6. In this modification example, the initial request including print mode information is an example of the "second type of request." The image processing for printing is an example of the "specific type of image processing." Further, S132, S134, S160, S162, and S180 of FIG. 6 are examples of "second mediation communication."

Modification Example 6

[0231] In each embodiment described above, the CPU 72 of the mediation server 50 generates service selection screen information not including information on the service name "SVB" in S332 of FIG. 8. Alternatively, the CPU 72 may generate service selection screen information including information on the service name "SVB," and instruction information for instructing the multifunction device 10 to display the service name "SVB" in a non-selectable mode (for example, so-called grey-out). In this case, the CPU 32 of the multifunction device 10 causes the service selection screen including the service name "SVB" to be displayed on the display unit 14, similar to the service selection screens SC2 and SC3 of FIG. 9. However, the service name "SVB" is displayed in the non-selectable mode. In this modification example, the service selection screen information including the above instruction information is an example of "second service selection screen information."

Modification Example 7

[0232] In each embodiment described above, the respective processes of FIGS. 4 to 8 and FIGS. 11 to 17 are realized by the CPU 72 of the mediation server 50 executing the process according to software (that is, a program). Alternatively, at least one of these processes may be realized by hardware, such as a logical circuit. Similarly, at least one of the respective processes executed by the multifunction device 10 may be realized by hardware, such as a logical circuit.

[0233] Further, technical elements described in the present specification or drawings exhibit technical usefulness singly or through various combinations, and are not limited to a combination of claim definitions at the time of filing an application. Further, the technology illustrated in the present specification or drawings simultaneously achieves a plurality of objects, and has technical usefulness by achieving one of these objects.

What is claimed is:

1. A mediation server for mediating provision of a plurality of services from at least one service providing server to an image processing device capable of executing two or more types of image processing, the mediation server comprising:
   a processor; and
   memory storing a computer executable program, when executed by the processor, causing the mediation server to execute:
   a request acquisition instruction of acquiring a request for screen information from the image processing device, the request acquisition instruction causing the mediation server to acquire a first type of request from the image processing device when any one of the two or more types of image processing to be executed in the image processing device has not yet been selected by a user of the image processing device, and acquire a second type of request from the image processing device when a specific type of image processing to be executed in the image processing device among the two or more types of image processing has been selected by the user;

   a screen information supply instruction of sequentially supplying, to the image processing device, two or more pieces of screen information for causing a display unit of the image processing device to sequentially display two or more screens including a service selection screen and a communication selection screen when the first type of request is acquired; the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting target communication from plural types of communications including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data to the image processing device from a target service providing server which provides the target service among the at least one service providing server, the second type of communication including supply of a second type of target data to the target service providing server from the image processing device, the first type of target data being data related to the first type of image processing among the two or more types of image processing, and the second type of target data being data related to the second type of image processing among the two or more types of image processing;

   a selection information acquisition instruction of acquiring, from the image processing device, service selection information indicating the target service and communication selection information indicating the target communication when the two or more pieces of screen information are supplied; and

   a mediation communication execution instruction of executing first mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information and the communication selection information are acquired, the first mediation communication including communication for mediating supply of the first type of target data from the target service providing server to the image processing device when the communication selection information indicates the first type of communication as the target communication, and the first mediation communication including communication for mediating supply of the second type of target data from the image processing device to the target service providing server when the communication selection information indicates the second type of communication as the target communication,

wherein when the second type of request is acquired, the screen information supply instruction causes the mediation server to sequentially supply, to the image processing device, at least one piece of screen information for causing the display unit to sequentially display at least one screen in which the communication selection screen has been excluded from the two or more screens,

wherein when the at least one piece of screen information are supplied, the selection information acquisition instruction causes the mediation server to acquire, from the image processing device, the service selection information without acquiring the communication selection information,
wherein the mediation communication execution instruction causes the mediation server to execute second mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information is acquired without acquiring the communication selection information, and

wherein the second mediation communication includes communication of target data to be executed between the target service providing server and the image processing device, the communication being for mediating the communication of the target data related to the specific type of image processing.

2. The mediation server according to claim 1, wherein the first type of image processing is image processing for executing printing of an image represented by the first type of target data,

the second type of image processing is image processing for generating the second type of target data from scan data obtained through scanning of a document,

the specific type of image processing is the second type of image processing, and

the second mediation communication includes communication for mediating supply of the second type of target data from the image processing device to the target service providing server.

3. The mediation server according to claim 1, wherein the screen information supply instruction causes the mediation server to:

sequentially supply, to the image processing device, the two or more pieces of screen information including first service selection screen information for causing the display unit to display the service selection screen when the first type of request is acquired, and

sequentially supply, to the image processing device, the at least one piece of screen information including second service selection screen information for causing the display unit to display the service selection screen when the second type of request is acquired,

the first service selection screen information is information for causing the display unit to display the service selection screen in a mode in which the user is able to select the target service from among all of the plurality of services,

the second service selection screen information is information for causing the display unit to display the service selection screen in a mode in which the user is able to select the target service from among M services (M is an integer equal to or more than 1) among the plurality of services and in a mode in which the user is unable to select the target service from among N services (N is an integer equal to or more than 1) among the plurality of services,

each of the M services is a service provided by a first type of service providing server capable of executing a function related to the specific type of image processing, and

each of the N services is a service provided by a second type of service providing server incapable of executing the function related to the specific type of image processing.

4. The mediation server according to claim 1, wherein

the two or more pieces of screen information include service selection screen information for causing the display unit to display the service selection screen, and

the service selection screen information includes layout identification information for identifying one piece of layout data to be used to cause the display unit to display the service selection screen among a plural pieces of layout data stored in the image processing device, and a plural pieces of service-related information related to a plurality of service objects corresponding to the plurality of services.

5. The mediation server according to claim 1, wherein the computer executable program, when executed by the processor, causes the mediation server to execute a determination instruction of executing a first determination process of determining whether the image processing device is in a permission state or in a non-permission state after the communication selection information is acquired when the first type of request is acquired, the permission state being a state in which the user is permitted to execute image processing related to the target communication indicated by the communication selection information, and the non-permission state being a state in which the user is not permitted to execute image processing related to the target communication indicated by the communication selection information,

wherein the screen information supply instruction causes the mediation server to supply error screen information for causing the display unit to display an error screen indicating that the image processing device is in the non-permission state to the image processing device when it is determined in the first determination process that the image processing device is in the non-permission state,

the determination instruction causes the mediation server to execute a second determination process of determining whether the image processing device is in the permission state or in the non-permission state before the at least one piece of screen information is supplied when the second type of request is acquired, and

the screen information supply instruction causes the mediation server to supply the error screen information to the image processing device without supplying the at least one piece of screen information to the image processing device when it is determined in the second determination process that the image processing device is in the non-permission state.

6. An image processing device configured to execute two or more types of image processing and communicate with a mediation server for mediating provision of a plurality of services from at least one service providing server to the image processing device, the image processing device comprising:

a display unit; and

a control device configured to execute:

a request supply process of supplying a request for screen information to the mediation server when a predetermined instruction that is a trigger of execution of the image processing is given from a user of the image processing device, the request supply instruction causing the image processing device to supply a first type of request to the mediation server when any one of the two or more types of image processing to be executed has not yet selected by the user, and supply a second type of request to the mediation server when a specific type of image processing to be executed among the two or more types of image processing has been selected by the user;
a screen information acquisition process of sequentially acquiring two or more pieces of screen information from the mediation server in a first case in which the first type of request is supplied;

a first display control process of causing the display unit to sequentially display the two or more screens including a service selection screen and a communication selection screen sequentially using the two or more pieces of screen information in the first case, the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting a target communication from among plural types of communication including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data from a target service providing server providing the target service among the at least one service providing server to the image processing device, the second type of communication including supply of a second type of target data from the image processing device to the target service providing server, the first type of target data being data related to a first type of image processing among the two or more types of image processing, and the second type of target data being data related to a second type of image processing among the two or more type of image processing;

a selection information supply process of supplying, to the mediation server, service selection information indicating the target service and communication selection information indicating the target communication in the first case;

a target data acquisition process of receiving mediation from the mediation server to acquire the first type of target data from the target service providing server when the communication selection information indicating the first type of communication is supplied as the target communication in the first case; and

a target data supply process of receiving mediation from the mediation server to supply the second type of target data to the target service providing server when the communication selection information indicating the second type of communication is supplied as the target communication in the first case,

wherein the screen information acquisition process causes the image processing device to sequentially acquire, from the mediation server, at least one piece of screen information for causing the display unit to display at least one screen in which the communication selection screen has been excluded from among the two or more pieces of screen information in a second case in which the second type of request is supplied,

wherein the first display control process causes the image processing device to cause the display unit sequentially to display at least one screen including the service selection screen and not including the communication selection screen sequentially using the at least one piece of screen information in the second case,

wherein the selection information supply process causes the image processing device to supply the service selection information to the mediation server without supplying the communication selection information in the second case, and

wherein the control device execute a target data communication process of receiving mediation from the mediation server to execute communication of the target data related to the specific type of image processing with the target service providing server in the second case.

7. The image processing device according to claim 6, wherein

before the request for the screen information is supplied to the mediation server, the control device executes a second display control process of causing the display unit to display a first selection screen including a first object indicating execution of connection to the Internet and a second object indicating execution of the specific type of image processing,

the second display control process causes the image processing device to cause the display unit to display a second selection screen including a plurality of objects indicating a plurality of storage destinations when the second object included in the first selection screen is selected,

each of the plurality of storage destinations is a storage destination of data related to the specific type of image processing, and

the request supply process causes the image processing device to:

supply the first type of request to the mediation server when the predetermined instruction including selection of the first object included in the first selection screen is given from the user, and

supply the second type of request to the mediation server when the predetermined instruction including selection of a specific object indicating the storage destination on the Internet among the plurality of objects included in the second selection screen is given from the user.

8. A system comprising:

an image processing device configured to execute two or more types of image processing; and

a mediation server for communicating with the image processing device and mediating provision of a plurality of services from at least one service providing server to the image processing device capable of executing two or more types of image processing,

wherein the mediation server comprises:

a processor; and

memory storing a computer executable program, when executed by the processor, causing the mediation server to execute:

a request acquisition instruction of acquiring a request for screen information from the image processing device, the request acquisition instruction causing the mediation server to acquire a first type of request from the image processing device when any one of the two or more types of image processing to be executed in the image processing device has not yet been selected by a user of the image processing device, and acquire a second type of request from the image processing device when a specific type of image processing to be executed in the image processing device among the two or more types of image processing has been selected by the user;

a screen information supply instruction of sequentially supplying, to the image processing device, two or more pieces of screen information for causing a display unit of the image processing device to sequentially display two or more screens including a service selection screen and
a communication selection screen when the first type of request is acquired, the service selection screen being a screen for selecting a target service from the plurality of services, the communication selection screen being a screen for selecting target communication from plural types of communications including a first type of communication and a second type of communication, the first type of communication including supply of a first type of target data to the image processing device from a target service providing server which provides the target service among the at least one service providing server, the second type of communication including supply of a second type of target data to the target service providing server from the image processing device, the first type of target data being data related to the first type of image processing among the two or more types of image processing, and the second type of target data being data related to the second type of image processing among the two or more types of image processing;

a selection information acquisition instruction of acquiring, from the image processing device, service selection information indicating the target service and communication selection information indicating the target communication when the two or more pieces of screen information are supplied, and

a mediation communication execution instruction of executing first mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information and the communication selection information are acquired, the first mediation communication including communication for mediating supply of the first type of target data from the target service providing server to the image processing device when the communication selection information indicates the first type of communication as the target communication, and the first mediation communication including communication for mediating supply of the second type of target data from the image processing device to the target service providing server when the communication selection information indicates the second type of communication as the target communication,

wherein when the second type of request is acquired, the screen information supply instruction causes the mediation server to sequentially supply, to the image processing device, at least one piece of screen information for causing the display unit to sequentially display at least one screen in which the communication selection screen has been excluded from the two or more screens,

wherein when the at least one piece of screen information are supplied, the selection information acquisition instruction causes the mediation server to acquire, from the image processing device, the service selection information without acquiring the communication selection information,

wherein the mediation communication execution instruction causes the mediation server to execute second mediation communication for mediating provision of the target service indicated by the service selection information when the service selection information is acquired without acquiring the communication selection information, and

wherein the second mediation communication includes communication of target data to be executed between the target service providing server and the image processing device, the communication being for mediating the communication of the target data related to the specific type of image processing, and

wherein the image processing device comprises:

a display unit; and

a control device configured to execute:

a request supply process of supplying the request for screen information to the mediation server when a predetermined instruction that is a trigger of execution of the image processing is given from the user;

a screen information acquisition process of sequentially acquiring the two or more pieces of screen information from the mediation server in a first case in which the first type of request is supplied;

a first display control process of causing the display unit to sequentially display the two or more screens including the service selection screen and the communication selection screen sequentially using the two or more pieces of screen information in the first case;

a selection information supply process of supplying, to the mediation server, the service selection information in the first case;

a target data acquisition process of receiving mediation from the mediation server to acquire the first type of target data from the target service providing server when the communication selection information indicating the first type of communication is supplied as the target communication in the first case; and

a target data supply process of receiving mediation from the mediation server to supply the second type of target data to the target service providing server when the communication selection information indicating the second type of communication is supplied as the target communication in the first case,

wherein the screen information acquisition process causes the image processing device to sequentially acquire, from the mediation server, the at least one piece of screen information for causing the display unit to display at least one screen in which the communication selection screen has been excluded from among the two or more pieces of screen information in a second case in which the second type of request is supplied,

wherein the first display control process causes the image processing device to cause the display unit to sequentially display at least one screen including the service selection screen and not including the communication selection screen sequentially using the at least one piece of screen information in the second case,

wherein the selection information supply process causes the image processing device to supply the selection information to the mediation server without supplying the communication selection information in the second case, and

wherein the control device executes a target data communication process of receiving mediation from the mediation server to execute communication of the target data related to the specific type of image processing with the target service providing server in the second case.

9. The system according to claim 8, wherein the first type of image processing is image processing for executing printing of an image represented by the first type of target data,
the second type of image processing is image processing for generating the second type of target data from scan data obtained through scanning of a document, the specific type of image processing is the second type of image processing, and the second mediation communication includes communication for mediating supply of the second type of target data from the image processing device to the target service providing server.

10. The system according to claim 8, wherein the screen information supply instruction causes the mediation server to:

sequentially supply, to the image processing device, the two or more pieces of screen information including first service selection screen information for causing the display unit to display the service selection screen when the first type of request is acquired, and sequentially supply, to the image processing device, the at least one piece of screen information including second service selection screen information for causing the display unit to display the service selection screen when the second type of request is acquired,

the first service selection screen information is information for causing the display unit to display the service selection screen in a mode in which the user is able to select the target service from among all of the plurality of services,

the second service selection screen information is information for causing the display unit to display the service selection screen in a mode in which the user is able to select the target service from among M services (M is an integer equal to or more than 1) among the plurality of services and in a mode in which the user is unable to select the target service from among N services (N is an integer equal to or more than 1) among the plurality of services,

each of the M services is a service provided by a first type of service providing server capable of executing a function related to the specific type of image processing, and each of the N services is a service provided by a second type of service providing server incapable of executing the function related to the specific type of image processing.

11. The system according to claim 8, wherein the two or more pieces of screen information include service selection screen information for causing the display unit to display the service selection screen, and the service selection screen information includes layout identification information for identifying one piece of layout data to be used to cause the display unit to display the service selection screen among a plural pieces of layout data stored in the image processing device, and a plural pieces of service-related information related to a plurality of service objects corresponding to the plurality of services.

12. The system according to claim 8, wherein the computer executable program, when executed by the processor, causes the mediation server to execute a determination instruction of executing a first determination process of determining whether the image processing device is in a permission state or in a non-permission state after the communication selection information is acquired when the first type of request is acquired, the permission state being a state in which the user is permitted to execute image processing related to the target communication indicated by the communication selection information, and the non-permission state being a state in which the user is not permitted to execute image processing related to the target communication indicated by the communication selection information,

wherein the screen information supply instruction causes the mediation server to supply error screen information for causing the display unit to display an error screen indicating that the image processing device is in the non-permission state to the image processing device when it is determined in the first determination process that the image processing device is in the non-permission state,

the determination instruction causes the mediation server to execute a second determination process of determining whether the image processing device is in the permission state or in the non-permission state before the at least one piece of screen information is supplied when the second type of request is acquired, and

the screen information supply instruction causes the mediation server to supply the error screen information to the image processing device without supplying the at least one piece of screen information to the image processing device when it is determined in the second determination process that the image processing device is in the non-permission state.

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